NATIONAL AMBIENT AIR QUALITY MONITORING
SERIES : NAAQMS/11/1999-2000

AMBIENT AIR QUALITY MONITORING

STATUS - 1997

CENTRAL POLLUTION CONTROL BOARD
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Chairman

FOREWORD

The Central Pollution Control Board (CPCB) in collaboration with the State Pollution Control Boards (SPCBs) has established a National Ambient Air Quality Monitoring (NAAQM) network, comprising 290 stations in 92 cities/towns, under the Air (Prevention and Control of Pollution) Act, 1981 to collect, compile and disseminate information on air quality.

The ambient air quality is monitored by CPCB, SPCBs, Pollution Control Committees, some Universities and Institutes. The data, thus generated, are transmitted to CPCB for scrutinization, analysis, compilation and publication as a consolidated report.

This report contains ambient air quality data for the year 1997. Air pollution status of various pollutants has been defined in terms of Low, Moderate, High and Critical, vis-a -vis the notified ambient air standards and has been depicted in the form of tables and maps. The co-operation of the monitoring agencies is gratefully acknowledged.

(Dilip Biswas)

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INTRODUCTION

1.1 Need for Ambient Air Quality Monitoring in the country

Air Pollution is essentially an urban phenomenon as the processes of urbanization and industrialization are intimately related. Heavy industrialization, after independence, gave an impetus to the process of urbanization and primacy. The high density of population and industries in the cities leads to associated vehicular, domestic and industrial emissions affecting, adversely, the health and property of inhabiting citizens. The principal sources and pollutants of possible concern in urban areas are given in Table 1.1 while Table 1.2 provides the details of the health hazards of major pollutants.

Table 1.1 Principal sources and Pollutants of Possible concern in Urban Areas

Type of Sources	Fuel	Main Pollutants
Domestic Heating, Cooking	Wood, Peat, Biomass, etc.	Suspended Particulate Matter, Carbon Monoxide Oxides of Nitrogen
	Coal	Suspended Particulate Matter, Sulphur Dioxide , Carbon Monoxide, Oxides of Nitrogen
	Light Oil, Gas	Oxides of Nitrogen, Sulphur Dioxide
Industrial Boilers, Power Plants	Coal, Heavy oil	Oxides of Nitrogen, Sulphur Dioxide, Suspended Particulate Matter
Manufacturing Industrial Processes		Specific Pollutants related to nature of process, e.g. , Sulphur Dioxide and mercaptanes from oil refineries; heavy metals from smelters; fluorides from aluminum smelters; iron oxides from steel works; dust from cement works and disposal of solid wastes etc.
Transportation	Gasoline	Carbon Monoxide,Oxides of Nitrogen, Hydrocarbons, Oxidants*, Ozone*, Lead
	Diesel	Suspended Particulate Matter, Oxides of Nitrogen , Odour, Sulphur Dioxide

*Secondary pollutants formed in photochemical reactions in the atmosphere involving other Pollutants.

Table 1.2 Pollutants and Related Health Hazards

Pollutants	Effect on Human Health
Carbon Monoxide	Affects the Cardiovascular System
Nitrogen Oxides	Affects the Respiratory System
Ozone	Causes increased sensitivity to infections, lung diseases; irritation in eyes, nose and throat.
Sulphur Dioxide	Affects the functions of lungs.
Suspended Particulate Matter (SPM)	Reduces visibility, helps in formation of secondary pollutants.
Respirable Particulate Matter (RPM)	Affects respiratory tracts and embedded into alveoli. Carrier of many secondary pollutants and carcinogenic trace elements.
Volatile Organic Substances (VOC)	e.g. Benzene are Carcinogenic.
Lead	Toxic metal causes high mortality rate and organ failure.

To arrest the deterioration in the air quality, the Government of India enacted the Air (Prevention and Control of Pollution) Act, 1981 (referred to as Air Act, 1981, hereinafter). The Act prescribes various functions for Central Pollution Control Board (CPCB) at the apex level and State Pollution Control Boards (SPCBs) at state level. The main functions of CPCB, as outlined, are to :

advise the Central Government on any matter concerning the improvement of the quality of the air and the prevention, control and abatement of air pollution;

plan and cause to be executed a nation-wide programme for the prevention, control and abatement of air pollution;

provide technical assistance and guidance to the State Pollution Control Boards;

carry out and sponsor investigations and research relating to air pollution prevention, control and abatement of air pollutants;

collect, compile and publish technical and statistical data relating for air pollution; and

lay down the standards for the quality of air and emission quantities.

The SPCBs are entrusted with:

to plan a comprehensive programme for prevention, control or abatement of air pollution and to secure the execution thereof;

to advise the State Government on any matter concerning prevention, control and abatement of air pollution

to collect and disseminate information relating to air pollution;

to collaborate with CPCB in programme relating to prevention, control and abatement of air pollution; and

to inspect air pollution control areas, assess quality of air therein and take steps for prevention, control and abatement of air pollution in such areas.

To perform the above functions, the knowledge of nature, source and extent of pollution is pre-requisite which could be obtained through monitoring of ambient air quality. Therefore, the CPCB with the help of concerned SPCBs has established a network of ambient air quality monitoring, called National Ambient Air Quality Monitoring (NAAQM). The monitoring programme helps in:

- identification of areas in need of restoration and their prioritization;
- identification of nature and extent of pollution control needed; and
- assessment of effectiveness of the pollution control programme

1.2 Objectives of NAAQM

- The objectives of the NAAQM may be defined as to:
- determine present air quality status and trends;
- assess the health hazard and damage to the property;
- provide background air quality data as needed for industrial siting and town planning; and
- control and regulate pollution from industries and other sources to meet the air quality standards.

1.3 Establishment of NAAQM network

Under the Air Act (1981), CPCB is entrusted with the function of air quality management and to undertake air pollution control programme at national level. Regular monitoring of air quality and assessment of human exposure and damage to the property is the fundamental requirement for such an air pollution control programme.

As an integral part of the air pollution control programme, CPCB initiated a nationwide network of National Ambient Air Quality Monitoring (NAAQM) in the year 1984 with 7 stations at Agra and Anpara. Since then the number of monitoring stations have increased, steadily, over the period to 290 by 1992 covering 92 cities/towns in 24 States and 5 Union Territories of the country. The year-wise growth of monitoring network and the state-wise distribution are presented in Fig. 1.1 and Fig. 1.2, respectively. Fig 1.3 shows the location of cities/towns identified for the monitoring of air quality.

1.4 Air pollutants monitored under NAAQM

Under NAAQM, three air pollutants *viz.*, Sulphur Dioxide (SO_2), Oxides of Nitrogen as NO_2 and Suspended Particulate Matter (SPM), have been identified for regular monitoring at all the locations. The monitoring of meteorological parameters such as wind speed and direction, relative humidity and temperature was also integrated with the monitoring of air quality.

Due to increased diversity of air pollutants and their expected danger to human health and property, in 10 metro-cities of the country, additional parameters such as Respirable Particulate Matter (RPM), Respirable Lead and other toxic trace metals, Hydrogen Sulphide (H_2S), Ammonia (NH_3) and Polycyclic Aromatic Hydrocarbons (PAHs) besides three routine parameters are also being monitored since 1990.

The monitoring of pollutants is carried out for 24 hours (4-hourly sampling for gaseous pollutants and 8-hourly sampling for particulate matter) with a frequency of twice a week, to have 104 observations in a year. The detailed methodology is explained in Appendix-I

1.5 Monitoring Agencies

NAAQM, being a nationwide network, several agencies are involved in the activity. These are:

- Central Pollution Control Board: in the city of Delhi;
- State Pollution Control Boards : in the respective States;
- Pollution Control Committees: in the respective Union Territories;
- National Environmental Engineering Research Institute, Nagpur: in 10 metro cities of the country;
- Visvesvaraya Regional College of Engineering, Nagpur: in the city of Nagpur;
- Pune University, Pune: in the city of Pune;
- KTHM College, Nasik: in the city of Nasik ; and
- Walchund Institute of Technology, Solapur: in the city of Solapur

CPCB co-ordinates with these agencies to ensure the uniformity, consistency of air quality data and provides technical and financial support to them for operating the monitoring stations.

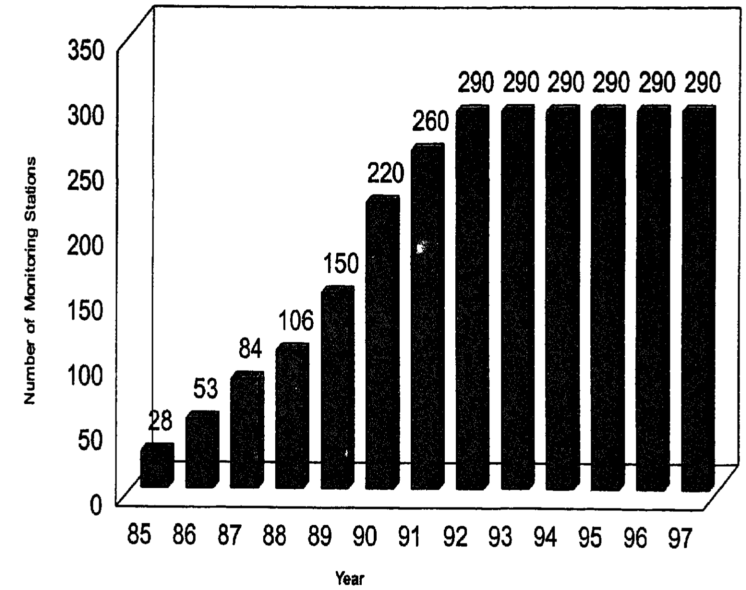
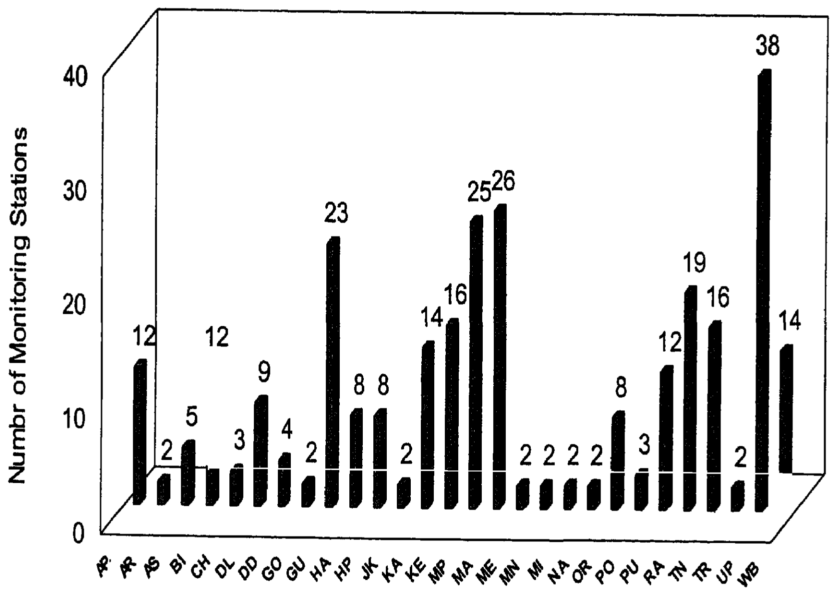


Figure 1.1 : Growth of Monitoring Network



AP - Andhra Pradesh	AR - Arunachal Pradesh	AS - Assam	BI - Bihar
CH - Chandigarh	DL - Delhi	DD - Daman, Diu, NH	GO - Goa
GU - Gujarat	HA - Haryana	HP - Himachal Pradesh	JK - Jammu & Kashmir
KA - Karnataka	KE - Kerala	MP - Madhya Pradesh	MA - Maharashtra
ME - Meghalaya	MN - Manipur	MI - Mizoram	NA - Nagaland
OR - Orissa	PO - Pondicherry	PU - Punjab	RA - Rajasthan
TN - Tamil Nadu	TR - Tripura	UP - Uttar Pradesh	WB - West Bengal

Figure 1.2 : Statewise Distribution of Air Monitoring Stations

National Ambient Air Quality Monitoring Network



1.6 Ambient Air Quality Standards

In the year 1994, under section 16 *(2) (h)* of the Air Act (1981), CPCB laid down and notified the ambient air quality standards (Table 1.3) for industrial, residential and sensitive areas for various air pollutants *viz.*, sulphur dioxide, nitrogen oxides, suspended particulate matter, respirable particulate matter, respirable lead and carbon monoxide. These standards provide the basis for protecting the public health from adverse effect of air pollution and limiting those contaminants of air that are known or likely to be hazardous to human beings, vegetation, animals and national heritage (historical monuments) within the adequate margins of safety.

Table 1.3 National Ambient Air Quality Standards (NAAQS)

		Concentration in Ambient air			
Pollutant	**Time weighted average**	**Sensitive area**	**Industrial area**	**Residential, rural and other areas**	**Method of measurement**
Sulphur Dioxide (µg/m3)	Annual* 24-hours**	15 30	80 120	60 80	• Improved West & Gaeke Method. • Ultraviolet Fluorescence
Oxides of Nitrogen as NO_2 (µg/m³)	Annual* 24-hours**	15 30	80 120	60 80	• Jacob & Hochheiser Modified (Na-arsenite) Method • Gas phase Chemiluminiscence
Suspended Particulate Matter (SPM) (µg/m³)	Annual* 24-hours**	70 100	360 500	140 200	• High Volume Sampling (Average flow rate not less than 1.1 m³/minute)
Respirable Particulate Matter (RPM) size less than 10 µm (µg/m³)	Annual* 24-hours**	50 75	120 150	60 100	• Respirable Particulate Matter Sampler
Lead (µg/m³)	Annual* 24-hours**	0.50 0.75	1.00 1.50	0.75 1.00	• AAS Method after sampling using EPM 2000 or equivalent filter paper
Carbon monoxide (CO) (mg/m³)	8-hours** 1-hour	1.0 2.0	5.0 10.5	2.0 4.0	• Non-Dispersive Infra red Spectroscopy

* - Annual arithmetic mean of minimum 104 measurements in a year taken twice a week 24 hourly at uniform interval.

** - 24 /8 hourly values should be met 98% of the time in a year. However, 2% of the time, it may exceed but not on two consecutive days.

Note :

1. National Ambient Air Quality Standard : The levels of air quality with an adequate margin of safety, necessary to protect the public health, vegetation and property.

2. Whenever and wherever two consecutive values exceed the limit specified above for the respective category, it would be considered adequate reason to institute regular/ continous monitoring and further investigations.

1.7 Data Analysis and Limitations

The air quality data generated at the monitoring stations are transmitted to CPCB where they are checked, scrutinized, compiled, processed and analyzed statistically to get the information on the monthly and annual minimum, maximum and mean values of concentration of the pollutants. In the present report, only the results of routine parameters i.e., SO_2, NO_2 and SPM, for the year 1997 are presented.

While presenting the air quality data in this report following conventions were followed:

i. Since the target sampling of 24 hours in a day could not be fulfilled at all the locations due to certain reasons, the values monitored for more than 16 hours are considered as the representative values for assessing the ambient air quality for that day;
ii. In case, no data are available in a particular month with respect to all the three parameters the month has been excluded;
iii. In case, no data are reported for a particular station with respect to all the three parameters during entire year, that station has been excluded; and
iv. The target frequency of monitoring twice a week, 104 days in a year could not be met in some of the locations, in such cases 50 days of monitoring in a year is considered adequate for the purpose of data analysis.

As NAAQM is being operated through various monitoring agencies, a large number of personnel and equipment are involved in the sampling, chemical analyses, data reporting etc. It increases the probability of variation and personal biases reflecting in data, hence it is pertinent to mention that this document be read keeping in view the above facts and the data be treated as indicative rather than absolute.

Chapter II

MAJOR FINDINGS

2.1 Air Quality Assessment

The air quality of different cities/towns with respect to three criteria pollutants has been compared with the respective NAAQS and has been categorized into four broad categories based on an Exceedence Factor (the ratio of annual mean concentration of a pollutant with that of a respective standard). The Exceedence Factor (EF) is calculated as follows:

$$\text{Exceedence Factor} = \frac{\text{Observed annual mean concentration of a criterion pollutant}}{\text{Annual standard for the respective pollutant and area class}}$$

The four air quality categories are:

- Critical Pollution (C) : when EF is more than 1.5;
- High Pollution (H) : when the EF is between 1-1.5;
- Moderate Pollution (M) : with and EF between 0.5 - 1.0; and
- Low Pollution (L) : where the EF is less than 0.5.

Thus, from the above categorization, it is obvious that the locations in either of the first two categories are actually violating the standards, although, with varying magnitude. Those, falling in the third category are meeting the standards as of now but likely to violate the standards in future if pollution continues to increase and is not controlled. However, the locations in Low pollution category have a rather pristine air quality and such areas are to be maintained at low pollution level by way of adopting preventive and control measures of air pollution.

This report contains the air quality assessment of 193 monitoring locations (in 64 cities/towns), out of which 102 are in residential, 88 in industrial and 3 in sensitive areas. At 45 locations (22 residential + 26 industrial), data are insufficient (< 50 monitoring days in the year) with respect to gaseous pollutants and at 58 locations (32 residential + 26 industrial) with respect to SPM (Table 2.1). Such locations have not been considered for air quality assessment.

Table 2.1 Classifications of Monitoring Stations

Area Type	Number of Monitoring stations	Number of locations with Inadequate data	
		Gaseous Pollutants	SPM
Residential	102	22	32
Industrial	88	26	26
Sensitive	3	-	-
Total	193	48	58

An overview of the relative air quality situation in the different cities/towns of the country is presented in Table 2.2 and Maps 1 through 3 (Appendix-II). However, such categorization or air quality assessment is difficult owing to several unavoidable scientific, technical and administrative reasons.

Table 2.2 Ambient Air Quality Status of various Cities/Towns during 1997

	Annual Mean Concentration Range (µg/m³)			
Pollution Level	Industrial		Residential	
	SO_2 & NO_2	SPM	SO_2 & NO_2	SPM
Low (L)	0-40	0-180	0-30	0-70
Moderate (M)	40-80	180-360	30-60	70-140
High (H)	80-120	360-540	60-90	140-210
Critical (C)	>120	>540	>90	>210

STATE / CITY	SULPHUR DIOXIDE		NITROGEN DIOXIDE		SPM	
AREACLASS ➢	I	R	I	R	I	R
Andhra Pradesh						
• Hyderabad	L	L	M	L	M	H
• Vishakhapatnam	L	M	M	C	L	C
Assam						
Bihar						
• Jharia	M	-	M	-	H	-
• Dhanbad	-	M	-	M	-	H
• Jamshedpur	M	M	M	M	L	M
• Patna	-	L	-	M	-	C
• Sindri	M	-	M	-	M	-
Delhi						
• Delhi	L	L	M	M	H	C
Gujarat						
• Ahmedabad	L	L	L	M	-	-
Goa						
• Vasco	L	-	L	-	L	-
• Ponda	-	L	-	L	-	M
Himachal Pradesh						
• Shimla	-	L	-	L	-	M
• Damtal	-	-	-	L	-	H
• Parwanoo	-	-	-	L	-	M
• Paonta Sahib	-	-	L	-	M	-
Haryana						
• Yamuna Nagar	L	-	L	-	L	-
Karnataka						
• Bangalore	L	M	L	L	M	C
• Mysore	L	-	L	-	L	-
Kerala						
• Cochin	L	L	L	L	L	-
• Chingavanam	L	-	L	-	L	-

Note : '-' - Data Not Available/Inadequate

Contd....

Table 2.2 (Contd..)

STATE / CITY	SULPHUR DIOXIDE		NITROGEN DIOXIDE		SPM	
AREACLASS ➢	I	R	I	R	I	R
•Kottayam	L	-	L	-	L	-
•Kozhikode	L	L	L	L	L	M
•Trivendrum	L	L	L	L	M	M
Maharashtra						
•Bombay	L	L	L	M	-	-
•Chanderpur	L	M	M	M	L	M
•Dombivali	L	L	L	L	L	M
•Nagpur	L	L	L	L	L	H
• Solapur	L	L	M	M	M	C
Meghalaya						
• Shilong	-	L	-	L	-	L
•Nasik	L	M	L	M	L	C
Madhya Pradesh						
•Bhilai	L	M	L	M	M	H
•Bhopal	L	L	L	M	M	C
•Indore	L	L	L	L	M	C
•Jabalpur	-	-	-	L	-	M
•Korba	-	L	-	L	-	H
•Nagda	H	H	M	L	L	M
•Satna	L	L	L	L	M	H
•Raipur	L	L	L	L	L	H
Orissa						
•Angul	-	-	-	-	-	M
•Talcher	-	-	-	-	L	-
•Rourkela	L	L	L	L	L	-
Punjab	-	-	-	-	-	-
•Gobindgarh	L	-	M	-	M	-
•Jalandhar	-	L	-	M	-	C
•Ludhiana	L	L	M	M	M	C
Rajasthan						
•Alwar	L	L	M	H	H	C
•Jaipur	L	L	L	L	-	H
•Kota	L	L	M	M	L	H
•Udaipur	-	-	M	M	M	C
Tamil Nadu						
•Coimbatore	-	-	-	L	-	M
•Tuticorin	-	L	-	L	-	M
•Madras	L	-	L	-	L	-

Note : '-' - Data Not Available/Inadequate

Contd...

Table 2.2 (Contd..)

STATE / CITY	SULPHUR DIOXIDE		NITROGEN DIOXIDE		SPM	
AREACLASS ➢	I	R	I	R	I	R
Uttar Pradesh						
•Agra	-	L	-	L	H	C
•Anpara	M	-	M	-	M	-
•Dehradun	L	L	L	L	M	C
•Ghaziabad	-	-	-	-	M	-
•Gajraula	-	-	-	-	-	C
•Kanpur	L	L	L	L	-	C
•Noida	-	-	-	-	M	-
•Lucknow	L	M	L	M	M	C
West Bengal						
•Calcutta	-	L	-	L	-	C
•Howrah	-	C	-	C	M	C
Chandigarh	L	L	L	L	M	C
Pondichery	-	M	-	M	-	C

Note : '-' - Data Not Available/Inadequate

2.2 Major Findings

2.2.1 Sulphur dioxide (SO_2)

2.2.1.1 Fig. 2.1 depicts the Annual Mean Concentration of SO_2 vis-à-vis number of monitoring stations. It is observed that at four locations viz. one sensitive location (Barkhera, Kota, Rajasthan), one residential location in the city of Nagda and one industrial location in Nagda, high levels of SO_2 is reported, whereas rest of the locations conformed to the respective standards.

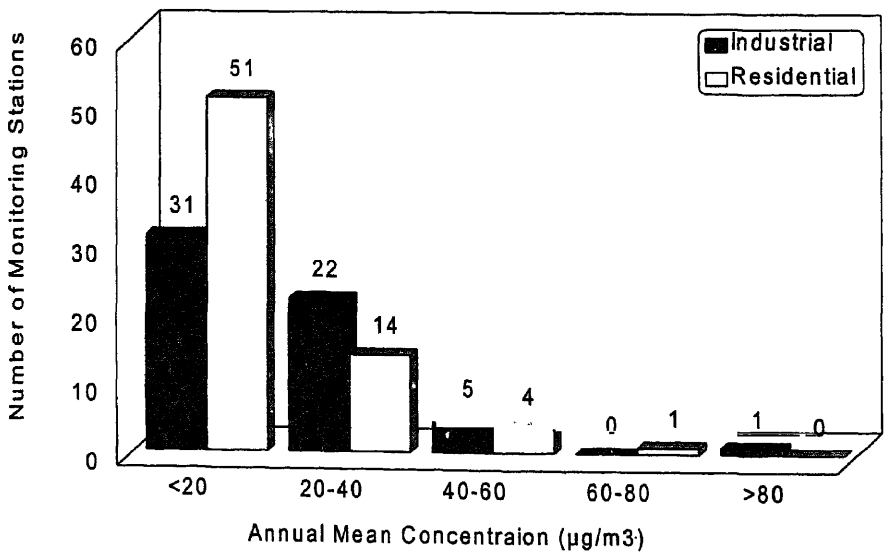


Fig 2.1 Distribution of Monitoring Locations (Annual Mean Concentration of Sulphur Dioxide)

The rayon industry in the town of Nagda gives rise to high concentration of SO_2 in the atmosphere. Table 2.3 enlists the details of the ten locations with the highest annual mean concentration of SO_2.

Table 2.3 Ten Locations Having Highest Concentration of Sulphur Dioxide during 1997

	Industrial			Residential		
S. No.	**Location**	**State**	**Annual Mean Conc. (μg/m³)**	**Location**	**State**	**Annual Mean Conc. (μg/m³)**
1.	Chejmical Division Labour Club, Nagda	M.P.	82*	Grasim Kalyan Kendra, Nagda	M.P.	77*
2.	Renusagar Colony, Anpara	U.P.	56	Housing Board's Office, Sec. Office	Pondichery	43
3.	Anpara Colony, Anpara	U.P.	54	Sakchi Water Tower, Jamshedpur	Bihar	41
4.	MADA, Jharia	Bihar	45	RTO Colony Tank, Nasik	Maharashtra	41
5.	FCI Main Hospital,Sindri	Bihar	41	Panchayat Raj Visakhapatnam	A.P.	40
6.	Burmamines Water Tower, Jamshedpur	Bihar	40	Nasik Municipal Council, Nasik	Maharashtra	38
7.	BCI Labour Club, Nagda	M.P.	40	R.O., Dhanbad	Bihar	37
8.	VIP Ind. Area, Satpura,Nasik	Maharashtra	37	S.R Off., Bapat Nagar, Chanderpur	Maharashtra	33
9.	Parel, Mumbai	Maharashtra	36	Visak Hostel, Sector-4, Bhilai	M.P.	31
10	M.I.D.C. Chandrapur	Maharashtra	34	Anand Rao Circle, Bangalore	Karnataka	30

* - Locations where Annual Mean Concentration of SO_2 exceeded the respective standard of 80 μg/m³ for Industrial and 60 μg/m³ for Residential areas.

2.2.1.2 The number of locations, where either annul mean concentration (AMC) or 24-hourly concentration exceeded the standard for more than 5% of the times are listed in Table 2.4. Percent Violation with respect to 24-hourly standards is depicted in Fig. 2.2. During 1997, at one sensitive and two residential locations either AMC or 24-hourly or both the values exceeded the respective standards.

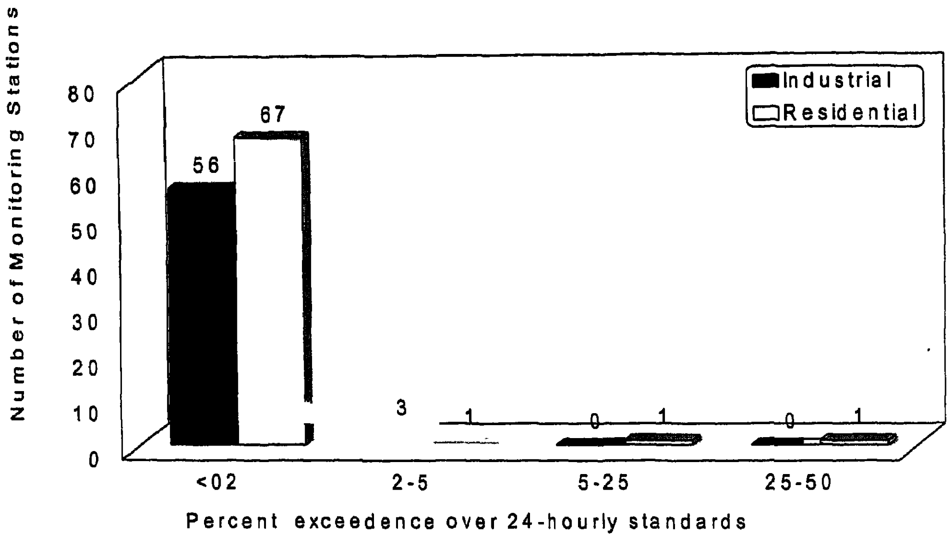


Fig 2.2 Percent Violation of 24-hourly Standards (Sulphur Dioxide)

Table 2.4 : Locations Where Either Annual Mean or 24-hourly Sulphur Dioxide Concentration Violated Respective Standards

LOCATION	STATE	AREA CLASS	ANNUAL MEAN (µg/m3)	% Exceedence over 24-hourly Standards
Chemical Division Labour Club, Nagda	M.P.	Industrial	82	1
Panchayat Raj office, Mindi, Visakhapatnam	A.P.	Residential	40	10
Grasim Kalyan Kendra, Nagda	M.P.	Residential	77	41
Barkhera, Kota	Rajasthan	Sensitive	16	1

2.1.1.3 Status of SO_2 during 1997

Based on the air quality data analysis and pollution level categorization, the status of SO_2 levels during 1997 is presented in the Fig 2.2A. The AMC of SO_2 is reported high at 2 industrial and one residential locations in the country.

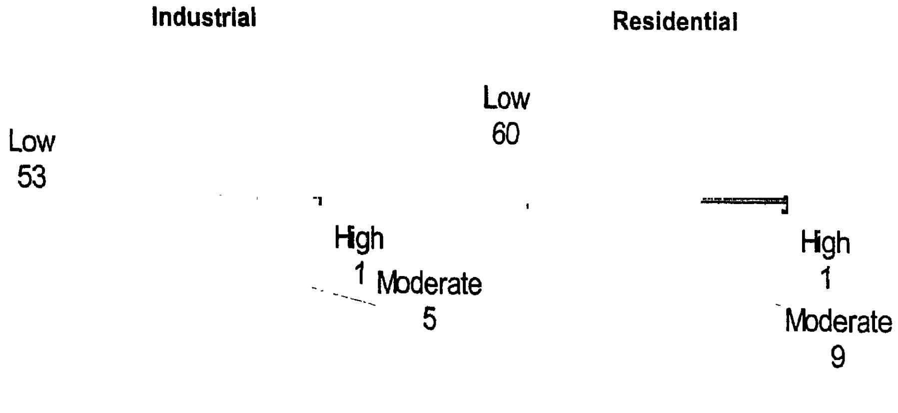


Fig 2.2A Status of Sulphur Dioxide (SO_2) Levels

2.2.2 Oxides of Nitrogen (as NO_2)

2.2.2.1 The distribution of number of monitoring locations in various air quality categories with respect to nitrogen dioxide is presented in Fig. 2.3. At one sensitive, one industrial and two residential locations, annual standard for the NO_2 were violated.

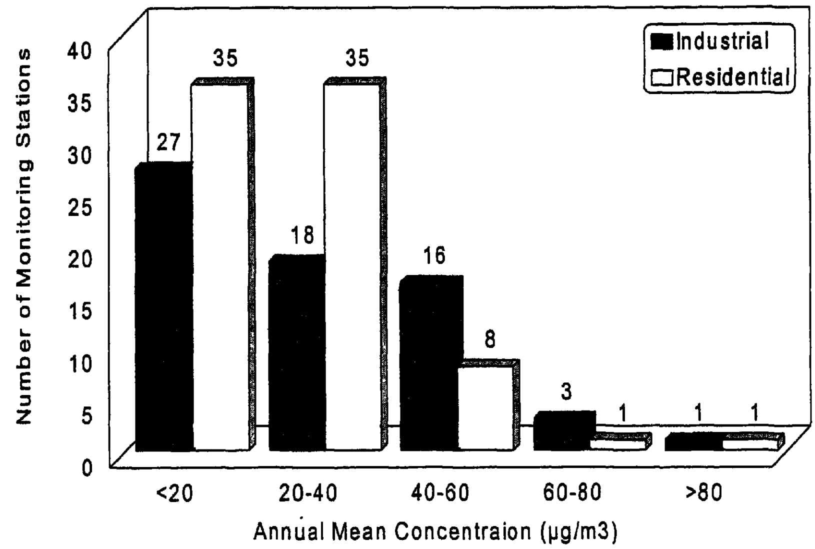


Fig 2.3 Distribution of Monitoring Locations (Annual Mean Concentration of Nitrogen Dioxide)

These locations are in the city of Alwar (one industrial and one residential) and Visakhapatnam (one residential). Alwar is a satellite town of Delhi with a high concentration of industries. Due to inadequate power supply, the industrial, commercial and residential activities often resort to captive power generation resulting in high emissions of oxides of nitrogen. Table 2.5 enlists ten locations with the highest annual mean concentration of nitrogen dioxide.

Table 2.5 Ten Locations Having Highest Concentration of Nitrogen Dioxide

	Industrial			Residential		
S. No	Location	State	Annual Mean Conc. ($\mu g/m^3$)	Location	State	Annual Mean Conc. ($\mu g/m^3$)
1.	RIICO Pump House, Alwar	Rajasthan	80*	Panchayat Raj Offi. Visakhapatnam	A.P.	96*
2.	Gaurav Solvex, Alwar	Rajasthan	79	Regional Office, Alwar	Rajasthan	76*
3.	PIPDIC Ind Estate Mettupalayam	Pondichery	70	S.R Off., Bapat Nagar, Chanderpur	Maharashtra	55
4.	BCI Labour Club, Nagda	M.P.	60	Sakchi Water Tower, Jamshedpur	Bihar	52

Contd..

Table 2.5 Contd..

	Industrial			Residential		
S. No	Location	State	Annual Mean Conc. (µg/m³)	Location	State	Annua l Mean Conc. (µg/m³)
5.	MADA, Jharia	Bihar	57	Town Hall, Udaipur	Rajasthan	49
6.	Renusagar Colony, Anpara	U.P.	56	Vateinary. Hospital, Kota	Rajasthan	49
7.	Anpara Colony, Anpara	U.P.	55	Chitale Clinic, Solapur	Maharashtra	48
8.	FCI Main Hospital, Sindri	Bihar	54	R.O. Dhanbad	Bihar	48
9.	MIDC, Chandrapur	Maharashtra	54	Municipal Council, Jalandhar	Punjab	46
10	Burmamines Water Tower,Jamshedpur	Bihar	51	Clock Tower, MC Office, Ludhina	Punjab	43

Locations where Annual Mean Concentration of SO_2 exceeded the respective standard of 80 µg/m³ for Industrial and 60 µg/m³ for Residential areas.

2.2.2.2 The details of number of locations where either annual mean or 24-hourly concentration exceeded the standards of NO_2 for more than 5% times are listed in Table 2.6. Percent Violation with respect to 24-hourly standards is depicted in Fig. 2.4. During 1997, one sensitive and nine residential locations violated the 24-hourly standards of NO_2 for more than 5% of the times.

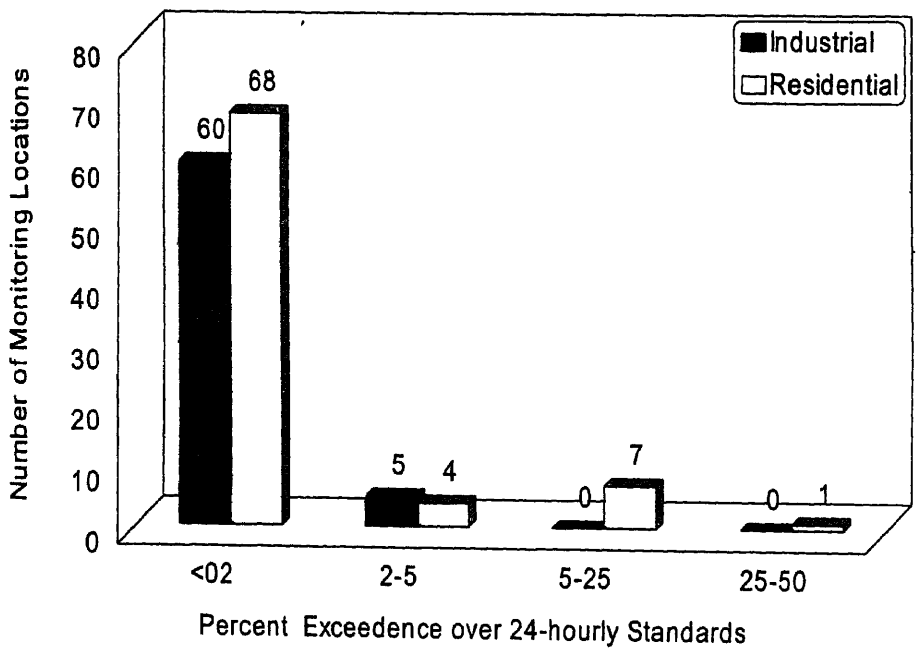


Fig 2.4 Percent Violation of 24-hourly Standards (Nitrogen Dioxide)

Table 2.6 : Locations Where Either Annual Mean or 24-hourly Nitrogen Dioxide Concentration Violated Respective Standards

LOCATION	STATE	AREA CLASS	ANNUAL MEAN (µg/m3)	% Exceedence over 24-hourly Standards
RIICO Pump House, Alwar	Rajasthan	Industrial	80	0
Panchayat Raj off., Mindi, Visakhapatnam	Andhra Pradesh	Residetial	96	33
R.C. High School, Ahmedabad	Gujarat	Residetial	34	7
Kalbadevi, Bombay	Maharashtra	Residetial	36	7
Bandra, Bombay	Maharashtra	Residetial	31	7
Housing Board's Off., S. Off., Pondicherry	U.T.	Residetial	38	5
Regional Office, Alwar	Rajasthan	Residetial	76	18
Regional Office, Udaipur	Rajasthan	Residetial	35	8
Town Hall, Udaipur	Rajasthan	Residetial	49	14
Barkhera, Kota	Rajasthan	Sensitive	49	94

2.2.2.3 Status of NO_2 during 1997

Based on the air quality data analysis and pollution level categorization, the status of NO_2 during 1997 (Fig 2.4A) is reported to be high at one industrial and one residential location of the country. Overall it is observed that NO_2 violation is mainly in the state of Rajasthan (Alwar).

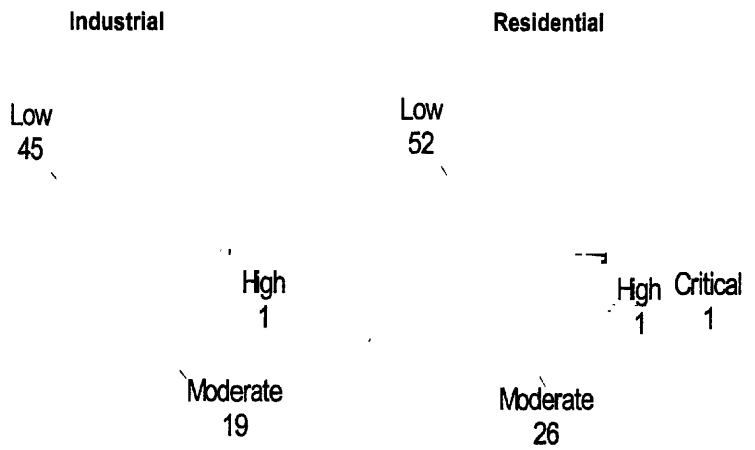


Fig 2.4 A Status of Nitrogen Dioxide Concentration

2.2.3 Suspended Particulate Matter (SPM)

2.2.3.1 The distribution of locations in various air quality categories with respect to the annual mean of SPM, during 1997, is presented in Fig. 2.5. At two locations in sensitive, six in industrial and 44 in residential areas violated the respective NAAQS. Table 2.7 enlists the ten locations each in industrial and residential areas reporting the highest concentration of SPM in the country.

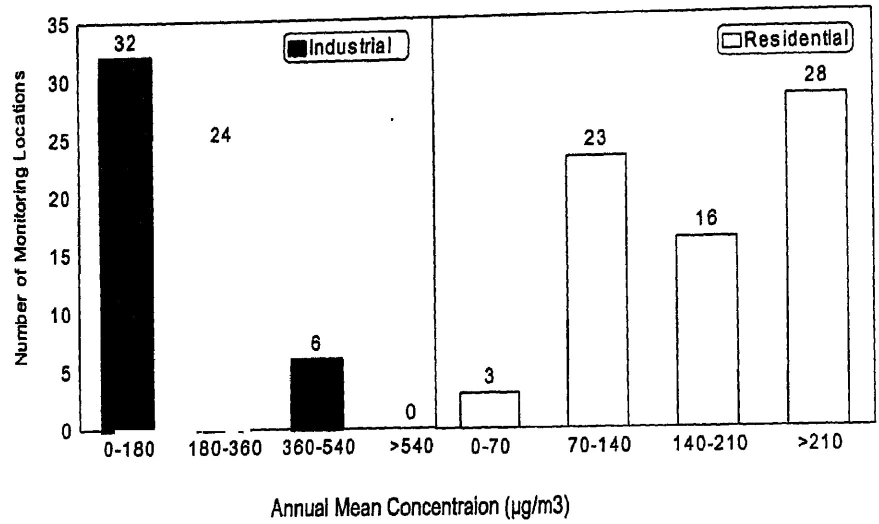


Fig. 2.5 Distribution of Monitoring Locations (Annual Mean Concentration of SPM)

Table 2.7 Ten Locations Having Highest Concentration of Suspended Particulate Matter during the year – 1997

	Industrial			Residential		
S. No	Location	State	Annual Mean Conc. (µg/m³)	Location	State	Annual Mean Conc. (µg/m³)
1.	DIC Nunhai, Agra	U.P.	492	Gandhi Maidan Test Centre, Patna	Bihar	610
2.	Talkatora, Lucknow	U.P.	431	Deputy Ka Parao, Kanpur	U.P.	492
3.	Town Hall, Delhi	Delhi	425	F. & T. Centre, Kidwai Nagar, Kanpur	U.P.	492
4.	Gaurav Solvex Alwar	Rajasthan	418	Siri Fort, Delhi	Delhi	367
5.	MADA, Jharia	Bihar	408	Kapoor Hotel, Hazratganj, Lucknow	U.P.	363
6.	PIPDIC Ind. Estate Mettupalayam	Pondichery	389	Nizamuddin, Delhi	Delhi	362
7.	DIC, Udaipur	Rajasthan	358	Janakpuri, Delhi	Delhi	343
8.	Rita S. Mach. Ludhiana	Punjab	343	Police Barracks, Visakhapatnam	A.P.	336
9.	Shahdara, Delhi	Delhi	313	Regional Office, Bodla, Agra	U.P.	335
10	Milk Plant Ludhiana	Punjab	308	Hamidia Road Bhopal	M.P.	335

- The annual mean concentration of SPM exceeded the industrial standards at 6 locations in the state of Bihar (1), Delhi (1), Rajasthan (1), U.P. (2) and Pondichery (1).

- The annual mean concentration of SPM exceeded standard for residential areas in 44 locations spread over the states of A.P. (3), Bihar (3), Chandigarh (1), Delhi (4), H.P. (1), Karnataka (1), Maharashtra (5), M.P. (7), Orissa (1), Punjab (3), Rajasthan (5), U.P. (8), W.B. (1) and Pondicherry (1).

- All the 2 stations in sensitive areas located at Taj Mahal, Agra (U.P.), Barkhera, Kota (Rajasthan) exceeded the NAAQS.

2.23.2 The details of locations wherein 24-hourly values exceeded the respective standards for more than 5% of the times are shown in the Fig. 2.6. Table 2.8 provides the number of stations where either AMC or 24-hourly (more tha 5% of the times) concentration exceeded the respective standards. During 1997, three sensitive (Tajmahal, Agra, Barkhera, Kota and Tekka Bench Ridge, Shimla), 11 industrial and 55 residential locations violated the 24-Hourly values for more than 5% of the times.

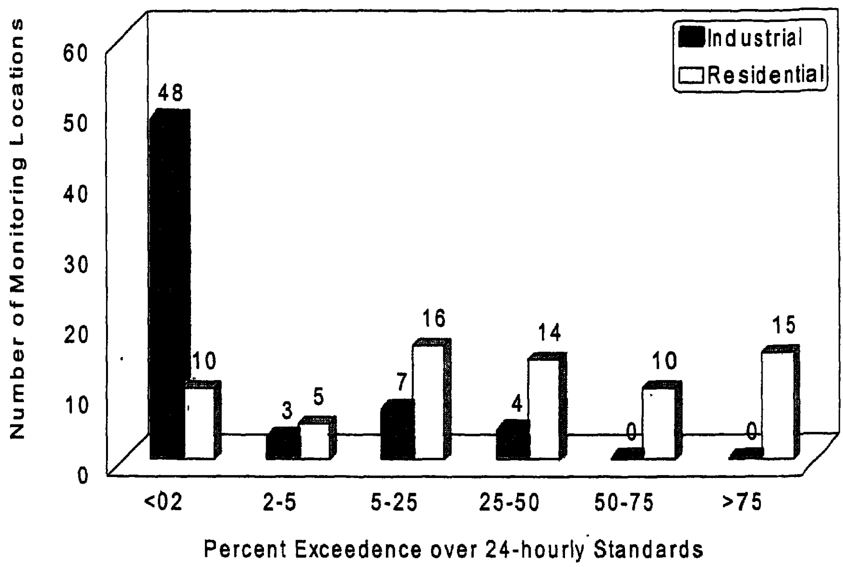


Fig 2.6 Percent Violation of 24-hourly Standards (Suspended Particulate Matter)

Table 2.8 Locations where either Annual Mean or 24-hourly Suspended Particulate Matter Concentration Violated Respective Standards

State	Number of Monitoring Locations exceeding standards	
	Industrial	Residential
Andhra Pradesh	-	3
Bihar	1	4
Delhi	2	6
Himachal Pradesh	-	1
Karnataka	-	1
Kerala	1	1
Madhya Pradesh	-	7

Contd..

Table 2.8 Contd..

State	Number of Monitoring Locations exceeding standards	
	Industrial	Residential
Maharashtra	-	5
Orissa	-	1
Punjab	-	3
Rajasthan	3	8
Uttar Pradesh	3	11
West Bengal	-	1
Chandigarh	-	1
Pondichery	1	2
Total	11	55

2.2.3.3 ***Status of SPM during 1997***

Based on the air quality data analysis and pollution level categorization, the status of SPM in the country during 1997 (Fig. 2.6A) is reported critical at 28 residential; and high at 6 industrial and 16 residential locations which is quite an alarming number. It is observed that the distribution of SPM is almost through out the country.

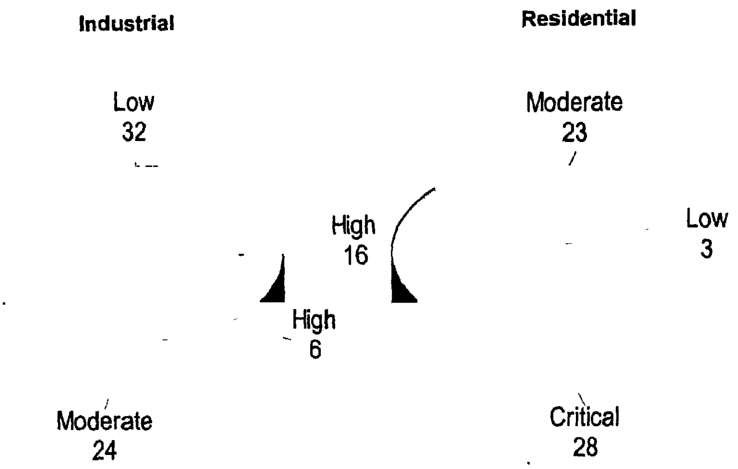


Fig. 2.6 A Status of Suspended Particulate Matter Concentration

2.2.4. Non-attainment areas fro the three pollutants are presented in Maps 1 through 3 (Appendix-II), which indicates that SPM is the major problem affecting nearly at all the cities followed by SO_2, especially in the state of Madhya Pradesh and Rajasthan and NO_2 in the cities of Alwar, Kota and Vishakhapatnam

2.3 Summary and Conclusion

Air Pollution problem is wide spread in 59 cities, where at least one criteria pollutant exceeded either annual or 24-Hourly standards in any of the monitoring locations.

Table 2.9 shows the number of stations violating annual standards and 24-Hourly standards for more than 2% of the times in the year 1997 with respect to individual criteria pollutant. It is quite evident that SPM is the major problem in the residential areas of almost all the cities/towns.

Table 2.9 Number of stations violating Annal and 24-hourly standards

Area Class	SO_2		NO_2		SPM	
	24-Hourly	Annual	24-Hourly	Annual	24-Hourly	Annual
Residential	3	1	12	2	60	44
Industrial	4	2	5	1	14	6
Sensitive	1	1	1	1	3	2
Total	8	4	18	4	77	52

A high level of SPM is the most prevalent form of air pollution.

Motor vehicles traffic is a major and most important source of pollution in almost all the mega cities.

High domestic use of coal or biomass fuel is still a serious problem resulting in high human exposures to SPM, SO_2.

The current capabilities of the monitoring agencies to monitor, or to collect information on the sources and emissions are inadequate. Therefore, there is an urgent need to strengthen the monitoring programme.

It should be noted that the data are lacking for quite a few stations due to various reasons such as non-operation of monitoring stations due to fund paucity, lack of equipment, lack of infrastructure and inadequate man-power.

2.4 Recommendations

There is an immediate need to improve and upgrade the existing monitoring network. Following measures would greatly enhance the quality and reliability of data and monitoring activity as such:

i) replacement of old air quality monitoring equipments;
ii) adequate infrastructure and trained man-power;
iii) monitoring of additional parameters such as RPM, CO, Pb, PAHs, benzene, 1,3 etc.;
iv) expansion of the existing network of 290 stations and use of continuous monitoring, systems wherever appropriate;
v) adoption of simple and rapid air quality monitoring techniques:
vii) health impact studies especially the air pollutants route of exposure in the environmental cycles;
viii) identification and notification of more sensitive areas;
ix) inclusion of background stations in the network to assess the anthropogenic impact;
x) regular training and refresher courses for the staff under NAAQM to augment the repeat analysis, proper sampling, preservation and analysis, data reporting, QA/QC etc.; and
xi) augmentation of resources for NAAQM.

Chapter III

AIR QUALITY STATISTICS

The details of the NAAQM network status and the ambient air quality statistics for the year 1997 have been presented state-wise in this chapter.

The information for each state and UTs is given in the form of:

i) details of monitoring network station-wise in each city;
ii) ambient air quality status in terms of air quality category (low, moderate, high or critical), and;
iii) air quality statistics on monthly and annual basis (minimum, maximum, and mean) of all the three pollutants along with the number of days for 16 or more hours of monitoring.

3.1 ANDHRA PRADESH

3.1.1 AIR QUALITY MONITORING NETWORK :

CITY(IES)	Industrial	Residential	Sensitive	Total
Hyderabad	3	3	0	6
Vishakhapatnam	1	2	0	3

3.1.2 AMBIENT AIR QUALITY STATUS

Annual Mean Concentration Range (μg/m3)						
	Industrial (I)	SO_2 & NO_2	SPM	Residential (R)	SO_2 & NO_2	SPM
Low	*L*	0-40	0-180	L	0-30	0-70
Moderate	*M*	40-80	180-360	M	30-60	70-140
High	*H*	80-120	360-540	H	60-90	140-210
Critical	*C*	>120	>540	C	>90	>210

		Annual Mean Concentration (μg/m3)		
City / Location	Area Class	SO_2	NO_2	SPM
CITY : Hyderabad				
CITD Balanagar	Industrial	L	M	C
Tarnaka	Residential	L	L	L
Nacharam	Industrial	L	L	L
Abids	Residential	L	L	M
Banjara Hills	Residential	L	M	H
Uppal	Industrial	L	L	L
CITY : Vishakhapatnam				
Police Barracks	Residential	L	M	C
Industrial Estate	Industrial	L	M	L
Panchayat Raj Office	Residential	M	C	C

3.1.3 AIR QUALITY STATISTICS : The values of monthly and annual minimum, mean and maximum alongwith the number of monitored days for 16 or more hours of three monitored parameters viz. SO_2, NO_2, and SPM are presented in Table 3.1.1.

Table 3.1.1 AMBIENT AIR QUALITY STATISTICS - 1997
STATE : Andhra Pradesh

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
***Location :* C.I.T.D., Balanagar, Hyderabad**												
January	24.3	28.0	31.7	2	42.3	57.1	71.9	2	387	438	488	2
March	7.9	7.9	7.9	1	29.5	29.5	29.5	1	133	193	233	4
April	14.5	32.8	49.4	8	54.2	86.1	125.5	8	129	266	409	8
June	11.5	32.5	62.6	5	10.2	41.2	121.1	5	128	197	270	6
July	6.0	17.5	34.1	9	16.5	22.9	29.3	9	97	213	396	9
August	7.9	36.9	82.0	5	28.7	46.1	59.8	5	104	191	336	5
November	11.9	23.6	44.9	15	23.3	40.9	67.4	15	107	186	286	15
December	16.0	22.6	52.0	14	29.7	46.9	91.3	14	163	245	451	14
Annual	6.0	25.4	82.0	59	10.2	46.5	125.5	59	97	223	488	63
***Location :* Tarnaka, Hyderabad**												
January	6.0	20.0	48.8	6	10.7	16.0	26.0	6	99	111	121	4
February	7.3	15.6	23.8	6	11.5	22.7	36.8	6	153	192	257	4
March	6.0	16.2	21.0	6	10.5	21.8	38.7	6	172	216	286	4
April	6.0	13.2	30.3	6	6.3	15.2	29.5	6	25	87	132	4
May	6.7	8.7	10.2	6	9.5	18.2	32.3	6	53	128	200	4
June	6.0	6.9	8.7	6	9.0	14.6	26.8	6	76	112	164	4
July	6.0	8.6	13.8	6	3.5	9.7	19.7	6	69	118	182	4
August	6.3	8.5	12.5	6	3.0	6.5	13.5	6	111	144	195	4
September	6.3	13.9	20.0	6	3.0	6.3	11.0	6	88	134	165	4
October	7.3	15.0	30.0	6	6.2	11.5	18.0	6	71	121	192	4
November	6.0	6.9	8.2	6	5.3	14.0	27.3	6	52	107	169	4
December	6.0	6.2	6.7	6	4.7	11.3	20.8	6	43	86	126	4
Annual	6.0	11.6	48.8	72	3.0	14.0	38.7	72	25	129	286	48
***Location :* Nacharam, Hyderabad**												
January	6.0	12.3	28.5	6	3.0	9.0	18.5	6	40	78	104	4
February	7.0	11.6	16.8	4	8.7	10 0	11.3	4	92	95	97	2
March	11.5	13.6	18.0	5	3.0	10.2	14.2	5	83	143	285	4
April	6.0	12.3	25.8	6	5.0	8.0	12.3	6	16	76	135	4
May	6.0	7.6	10.5	6	4.8	9.2	16.8	6	45	99	135	4
June	6 0	6 1	6.3	6	3.0	5.6	12.7	6	32	54	93	4
July	6 0	7.2	13.3	6	3.0	4.0	7.2	6	44	59	65	4
August	6.0	6.3	7.7	6	3.0	6.8	10.0	6	37	50	59	4
September	6.7	12.3	20.8	6	3.0	5.0	8.2	6	45	54	69	4

Note:N.A -Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.1.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
October	6.0	7.2	12.7	6	9.2	10.4	12.2	6	47	64	75	4
November	6.0	6.0	6.2	6	3.8	10.4	20.5	6	37	60	85	4
December	6.0	6.0	6.0	6	3.5	8.6	20.2	6	50	56	70	4
Annual	6.0	8.9	28.5	69	3.0	8.0	20.5	69	16	73	285	46
Location : ABIDS, Hyderabad												
January	6.0	22.1	51.3	6	16.2	28.4	42.5	6	143	182	229	4
February	8.0	11.9	16.5	6	19.5	23.7	30.3	6	183	215	286	4
March	7.5	11.2	14.5	6	12.3	19.2	27.5	6	173	203	243	4
April	6.0	12.0	21.0	6	10.8	14.7	21.8	6	70	115	190	4
May	6.0	8.5	14.7	6	8.8	13.1	18.3	6	78	126	177	4
June	6.0	9.0	16.2	6	4.0	8.1	12.7	6	48	88	119	4
July	6.0	9.3	13.3	6	4.8	8.0	15.3	6	72	105	123	4
August	6.8	12.0	28.7	6	3.2	10.9	18.0	6	81	91	109	4
September	9.6	21.2	42.4	6	4.0	20.5	43.5	6	76	111	141	4
October	6.0	13.4	24.8	6	11.0	26.7	42.0	6	81	97	117	4
November	6.0	7.9	11.2	6	20.7	28.8	33.0	6	51	88	129	4
December	6.0	8.1	12.0	5	20.3	25.1	29.7	5	7	90	142	4
Annual	6.0	12.3	51.3	71	3.2	18.8	43.5	71	7	126	286	48
Location : Banjara Hills, Hyderabad												
January	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	78	95	124	6
February	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	98	98	98	1
March	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	52	120	194	5
April	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	40	132	200	6
May	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	163	318	404	6
June	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	133	204	306	5
July	6.0	6.0	6.0	1	113.3	113.3	113.3	1	88	146	230	12
August	8.3	38.1	79.5	10	51.6	123.3	256.1	10	136	274	475	10
November	8.7	18.2	40.5	14	6.6	26.9	43.6	14	55	77	104	14
December	6.2	10.1	20.2	11	5.4	19.1	40.7	11	66	88	131	13
Annual	6.0	20.9	79.5	36	5.4	53.7	256.1	36	40	150	475	78
Location : Uppal, Hyderabad												
March	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	56	81	106	2
April	6.1	10.4	16.7	3	15.7	33.8	49.2	3	28	33	43	3
May	6.0	6.1	6.2	2	17.7	20.9	24.0	2	24	70	116	2

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.1.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
June	12.0	20.7	36.3	3	19.7	44.7	77.9	3	57	72	87	3
July	6.0	18.1	38.7	11	8.9	63.0	182.1	11	42	108	196	11
August	17.1	29.1	73.8	7	24.1	28.7	37.2	7	31	158	343	12
November	15.3	20.9	24.9	12	29.1	39.8	99.8	12	109	279	430	13
December	13.4	17.7	21.8	11	31.4	42.8	63.6	11	135	177	355	11
Annual	6.0	19.5	73.8	49	8.9	43.2	182.1	49	24	163	430	57
LOCATION : Police Barracks, Visakhapatnam												
January	15.7	35.3	63.0	8	35.8	58.7	77.8	8	103	365	490	9
February	17.3	33.9	61.0	8	21.6	40.2	50.9	8	300	362	452	8
March	31.8	43.2	72.0	9	18.9	34.7	59.4	9	275	368	446	9
April	15.1	24.4	30.1	8	16.2	33.7	45.2	8	185	238	274	8
May	21.9	27.8	37.7	9	13.5	37.1	66.1	9	214	300	418	9
June	17.5	37.2	81.6	9	14.6	33.8	51.6	9	269	308	381	9
July	17.0	32.9	64.6	8	24.6	43.2	81.4	8	208	314	419	8
August	14.2	22.5	30.1	8	20.4	33.3	42.4	8	209	270	320	8
September	12.4	21.8	44.8	8	38.1	59.5	123.1	8	229	330	392	8
October	7.1	21.0	41.9	9	26.7	38.5	69.5	9	315	441	566	9
November	8.5	13.6	16.7	8	28.5	36.0	46.3	8	200	344	431	8
December	7.2	11.8	16.9	9	17.9	32.4	67.6	9	265	379	493	9
Annual	7.1	27.2	81.6	101	13.5	39.9	123.1	101	103	336	566	102
LOCATION : Industrial Estate, Marripalem, Visakhapatnam												
January	10.7	23.0	42.6	8	41.6	55.7	69.3	8	107	216	284	9
February	19.0	35.7	62.6	8	49.2	76.9	127.8	8	178	263	336	8
March	19.4	55.0	134.6	8	26.9	80.8	191.0	8	170	267	377	8
April	11.3	24.0	33.1	9	10.5	29.7	46.8	9	65	132	200	9
May	18.3	26.1	38.5	9	12.5	28.4	48.0	9	95	153	211	9
June	18.5	26.0	45.1	8	13.5	33.0	44.2	8	106	140	192	8
July	15.0	35.3	107.2	9	13.4	35.6	81.6	9	77	128	171	9
August	12.9	21.9	35.2	9	17.1	28.8	36.0	9	92	115	143	9
September	12.9	28.0	77.3	9	28.6	39.9	57.9	9	69	123	164	9
October	7.6	16.7	37.1	8	12.5	26.4	57.7	8	100	151	237	9
November	6.9	12.2	15.3	8	10.6	26.9	36.4	8	57	121	250	8
December	6.0	13.9	25.2	9	15.8	27.5	37.6	9	52	117	172	9
Annual	6.0	26.4	134.6	102	10.5	40.3	191.0	102	52	159	377	104

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.1.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
LOCATION : Panchayat Raj office, Mindi, Visakhapatnm												
January	20.3	73.6	212.7	9	46.6	177.3	370.3	9	165	287	451	9
February	32.5	78.7	112.9	8	68.4	265.2	348.6	8	217	275	355	8
March	23.7	50.7	138.5	9	80.7	217.8	352.5	9	180	262	327	9
Apnl	19.3	43.7	83.8	9	21.3	75.1	241.5	9	148	264	551	9
May	20.0	35.7	77.1	9	15.4	40.2	55.5	9	192	284	352	9
June	21.7	48.3	82.0	8	26.5	62.6	112.4	8	188	292	380	8
July	13.7	37.1	54.4	8	23.5	44.5	60.1	8	73	159	212	8
August	15.9	27.7	40.7	9	20.8	67.7	166.0	9	98	198	286	9
September	15.2	24.1	43.1	7	38.1	108.6	207.1	7	62	199	307	8
October	6.2	16.6	24.1	9	23.7	40.1	62.9	9	151	256	402	9
November	8.9	18.6	29.8	9	27.7	36.4	44.8	9	178	262	328	9
December	15.7	27.3	61.8	9	21.7	33.6	45.8	9	247	326	423	9
Annual	6.2	40.1	212.7	103	15.4	96.4	370.3	103	62	256	551	104

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

3.2 ASSAM

3.2.1 AIR QUALITY MONITORING NETWORK :

CITY(IES)	Industrial	Residential	Sensitive	Total
Guwahati	0	1	0	1

3.2.2 AMBIENT AIR QUALITY STATUS

Annual Mean Concentration Range (µg/m3)						
	Industrial (I)	**SO_2 & NO_2**	**SPM**	**Residential (R)**	**SO_2 & NO_2**	**SPM**
Low	*L*	0-40	0-180	L	0-30	0-70
Moderate	*M*	40-80	180-360	M	30-60	70-140
High	*H*	80-120	360-540	H	60-90	140-210
Critical	*C*	>120	>540	C	>90	>210

		Annual Mean Concentration (µg/m3)		
City / Location	**Area Class**	**SO_2**	**NO_2**	**SPM**
CITY : Guwahati				
H.O., Bamuniamaidan	Residential	-	-	C

3.2.3 AIR QUALITY STATISTICS : The values of monthly and annual minimum, mean and maximum alongwith the number of monitored days for 16 or more hours of three monitored parameters viz. SO_2, NO_2, and SPM are presented in Table 3.2.1.

Table 3.2.1 AMBIENT AIR QUALITY STATISTICS - 1997
STATE : Assam

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location :Head Office, Bamunimaidan, Guwahati												
January	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	265	280	295	4
March	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	169	318	523	6
Annual	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	169	303	523	10

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

3.3 BIHAR

3.3.1 AIR QUALITY MONITORING NETWORK :

CITY(IES)	Industrial	Residential	Sensitive	Total
Dhanbad	0	1	0	1
Jharia	1	0	0	1
Sindri	1	0	0	1
Patna	0	2	0	2
Jamshedpur	1	1	0	2

3.3.2 AMBIENT AIR QUALITY STATUS

Annual Mean Concentration Range (µg/m3)						
	Industrial (I)	SO_2 & NO_2	SPM	Residential (R)	SO_2 & NO_2	SPM
Low	*L*	0-40	0-180	L	0-30	0-70
Moderate	*M*	40-80	180-360	M	30-60	70-140
High	*H*	80-120	360-540	H	60-90	140-210
Critical	*C*	>120	>540	C	>90	>210

		Annual Mean Concentration (µg/m3)		
City / Location	Area Class	SO_2	NO_2	SPM
CITY : **Dhanbad**				
Regional Office	Residential	M	M	H
CITY : **Jharia**				
M.A.D.A.	strial	M	M	H
CITY : **Sindri**				
Near P. Station (FCI Main Hospital)	Industrial	M	M	M
CITY : **Patna**				
Beltron Bhawan, Shastri Ngr.	Residential	L	L	C
Gandhi Maidan Test Centre	Residential	L	M	C
CITY : **Jamshedpur**				
Burmamines Water Tower	Industrial	M	M	L
Sakchi Water Tower	Residential	M	M	M

3.3.3 AIR QUALITY STATISTICS : The values of monthly and annual minimum, mean and maximum alongwith the number of monitored days for 16 or more hours of three monitored parameters viz. SO_2, NO_2, and SPM are presented in Table 3.3.1.

Table 3.3.1 AMBIENT AIR QUALITY STATISTICS - 1997
STATE : Bihar

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location :R.O. Dhanbad												
January	21.2	34.7	48.4	7	39.1	48.9	56.1	7	55	202	394	8
February	25.8	34.6	52.6	5	34.5	44.8	72.7	5	111	175	280	7
March	33.2	41.1	48.0	6	40.7	47.7	63.0	6	134	231	343	7
April	41.7	46.9	53.4	3	32.6	40.0	51.9	3	123	212	330	5
May	29.6	39.2	48.0	5	46.1	56.0	84.8	5	87	172	282	9
June	18.4	34.8	46.6	6	32.8	46.5	57.4	6	136	234	355	7
July	31.3	41.7	52.7	3	31.2	42.3	53.6	3	59	94	152	9
August	26.7	35.7	47.0	5	41.7	51.3	68.5	5	52	114	208	7
September	16.4	33.3	47.6	8	33.3	49.8	61.1	8	75	158	266	8
October	29.2	32.2	37.7	3	34.8	47.8	61.0	3	44	194	261	4
November	32.1	43.9	59.3	8	36.5	48.5	63.3	8	158	238	330	8
December	20.6	33.3	41.4	6	32.9	40.3	49.9	6	129	174	216	6
Annual	16.4	37.3	59.3	65	31.2	47.5	84.8	65	44	181	394	85
Location :M.A.D.A., Jharia												
January	28.3	38.9	49.6	7	42.3	51.7	57.9	7	158	454	689	7
February	30.2	43.5	62.1	8	47.6	55.2	64.6	8	157	395	829	8
March	28.8	46.9	63.5	7	49.5	61.0	74.5	7	402	565	880	8
April	49.2	55.6	66.9	8	46.3	59.2	69.1	8	206	320	561	9
May	41.1	49.4	62.1	7	38.0	51.1	67.3	7	277	356	478	7
June	38.7	47.1	61.1	6	47.1	62.3	73.3	6	192	352	579	7
July	32.3	41.4	57.8	6	25.8	63.1	102.8	6	102	190	410	8
August	18.2	42.4	65.8	7	34.6	54.6	80.4	7	132	275	369	7
September	30.6	41.0	50.2	7	43.2	56.5	68.9	7	80	306	506	8
October	36.5	47.2	58.9	7	48.6	56.1	64.4	7	412	572	823	7
November	28.1	44.7	59.2	8	42.9	57.4	75.1	8	207	606	892	8
December	28.6	40.2	45.7	6	33.7	56.6	76.1	6	302	548	839	6
Annual	18.2	45.0	66.9	84	25.8	57.0	102.8	84	80	408	892	90
Location :Near Police Station (FCI Main Hospital),BIT												
January	25.1	36.8	50.6	5	41.9	49.5	65.4	5	186	256	324	6
February	28.9	35.3	41.1	3	44.6	59.3	67.1	3	121	171	240	5
March	31.3	47.1	56.7	7	43.1	59.7	75.8	7	61	218	303	7
April	36.2	51.4	65.8	7	40.4	56.1	64.8	7	77	188	317	9
May	33.7	47.6	68.3	8	27.8	55.7	79.0	8	157	222	285	8

Note:N.A.-Data Not Available/Inadequate, Units in µg/m^3, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.3.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
June	29.8	39.6	49.9	8	35.6	43.0	49.0	8	106	212	303	8
July	21.1	34.3	55.0	9	32.7	52.9	72.0	9	90	139	203	9
August	19.9	38.3	45.1	5	43.6	53.7	67.6	5	67	155	225	7
September	22.9	34.3	56.1	6	43.2	63.7	87.7	6	61	139	235	7
October	28.3	40.9	54.9	7	42.5	55.5	80.1	7	180	326	654	7
November	27.1	39.7	47.5	4	31.4	52.8	74.1	4	176	333	601	5
December	33.2	41.3	53.7	4	42.7	54.6	75.0	4	223	253	308	4
Annual	19.9	41.0	68.3	73	27.8	54.4	87.7	73	61	212	654	82
Location :Burmamines Water Tower, Jamshedpur												
January	47.1	51.4	54.3	9	66.5	71.1	78.4	9	120	151	211	9
February	33.8	41.3	47.7	4	49.7	52.5	58.2	4	86	149	270	8
March	29.8	36.6	46.3	4	40.1	45.4	49.7	4	143	200	282	5
April	33.6	40.1	44.7	6	44.0	47.9	50.9	6	114	177	241	6
May	32.0	37.6	46.1	6	39.3	46.4	54.4	6	119	189	240	6
June	36.8	43.8	49.2	3	44.5	47.8	50.2	3	69	104	120	6
July	31.5	42.4	51.0	7	34.7	55.2	69.9	7	80	108	144	8
August	26.5	32.1	40.1	5	32.8	39.9	50.9	5	32	69	161	8
September	28.6	32.4	35.8	4	40.5	44.6	46.8	4	23	66	111	8
October	28.6	35.9	40.5	6	37.2	40.3	44.6	6	49	74	107	8
November	30.2	40.2	48.4	6	40.0	49.4	56.6	6	32	81	244	8
December	32.4	39.2	46.5	8	46.4	53.3	59.3	8	47	106	178	9
Annual	26.5	40.1	54.3	68	32.8	51.0	78.4	68	23	118	282	89
Location :Sakchi Water Tower, Jamshedpur												
January	46.8	54.4	-		64.7	70.8	77.6	7	71	146	241	9
February	37.3	39.8	41.4	4	47.7	53.8	58.2	4	104	151	234	7
March	34.7	37.0	40.3	6	45.3	49.5	54.2	6	61	191	260	8
April	36.8	38.5	40.0	5	47.6	49 9	52.7	5	94	156	202	6
May	32.2	36.7	40.6	5	41.3	47.4	50.8	5	89	157	208	6
June	35.1	44.2	51.6	6	47.7	52.0	57.3	6	87	140	233	7
July	42.7	49.6	59.9	3	45.1	48.4	50.3	3	84	166	274	9
August	34.7	43.2	48.3	7	38.8	54.6	86.5	7	27	97	264	8
September	25.0	31.1	35.3	8	36.0	45.9	53.8	8	84	118	142	8
October	30.6	36.4	49.3	7	38.0	42.5	57.3	7	47	83	129	9
November	36.0	43.2	49.9	6	40.0	47.1	52.5	6	36	71	125	8
December	37.7	43.8	50.3	8	48.4	56.0	67.0	8	55	101	149	8
Annual	25.0	41.2	59.9	72	36.0	51.8	86.5	72	27	130	274	93

Note:N.A.-Data Not Available/Inadequate, Units in µg/m^3, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.3.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location :Beltron Bhawan, Shastri Nagar, Patna												
January	6.9	10.7	14.8	8	26.0	30.2	37.8	8	327	370	451	8
February	6.9	22.1	52.3	8	14.1	20.0	29.7	8	253	318	400	8
March	22.4	29.6	40.6	8	16.9	24.0	29.9	8	245	371	898	8
April	8.0	10.6	12.8	8	11.0	16.0	20.0	8	228	328	435	8
May	12.7	13.3	14.2	9	16.1	17.3	18.6	9	235	263	293	9
June	9.0	10.4	11.4	9	10.6	12.9	15.2	9	116	219	311	9
July	6.5	6.9	7.2	9	7.5	7.9	8.5	9	92	108	125	9
August	6.5	8.2	10.0	9	7.4	10.4	13.2	9	53	66	78	9
September	7.3	8.6	12.0	7	10.1	11.3	14.7	7	85	105	175	7
October	9.3	12.7	14.6	5	12.4	16.4	18.6	5	101	156	196	7
November	10.6	11.5	12.7	8	13.2	14.2	15.9	8	83	177	258	10
December	6.9	10.5	12.3	3	7.4	12.4	15.2	3	74	178	262	3
Annual	6.5	13.0	52.3	91	7.4	16.2	37.8	91	53	222	898	95
Location :Gandhi Maidan Test Centre, Patna												
January	17.2	26.4	34.5	9	33.4	37.6	41.7	9	439	612	947	9
February	22.6	34.4	42.3	9	26.9	38.7	46.0	9	347	476	570	9
March	34.9	48.9	67.3	7	27.1	45.0	58.6	7	526	817	1229	7
April	26.0	29.8	39.6	8	14.9	29.4	33.2	8	135	253	312	8
May	26.6	28.2	30.5	8	31.0	32.8	36.8	8	646	794	894	8
June	29.8	31.3	33.2	8	35.4	37.1	39.1	8	769	876	958	8
July	8.4	14.3	19.8	8	11.7	18.8	24.0	8	124	240	429	8
August	15.5	18.7	21.6	4	17.8	21.6	24.3	4	275	361	476	4
October	24.9	28.7	31.1	3	31.1	35.4	38.3	3	157	519	871	5
November	23.6	28.5	31.2	10	27.6	33.7	37.0	10	595	901	1054	11
December	17.2	26.3	31.3	11	20.1	30.5	36.5	11	318	630	930	11
Annual	8.4	28.9	67.3	85	11.7	33.1	58.6	85	124	610	1229	88

Note:N.A -Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

3.4 DELHI

3.4.1 AIR QUALITY MONITORING NETWORK :

CITY(IES)	Industrial	Residential	Sensitive	Total
Delhi	5	4	0	9

3.4.2 AMBIENT AIR QUALITY STATUS

Annual Mean Concentration Range (µg/m3)						
	Industrial (I)	SO_2 & NO_2	SPM	Residential (R)	SO_2 & NO_2	SPM
Low	*L*	0-40	0-180	L	0-30	0-70
Moderate	*M*	40-80	180-360	M	30-60	70-140
High	*H*	80-120	360-540	H	60-90	140-210
Critical	*C*	>120	>540	C	>90	>210

		Annual Mean Concentration (µg/m3)		
City / Location	Area Class	SO_2	NO_2	SPM
CITY : Delhi				
Nizamuddin	Industrial	L	L	H
Ashok Vihar	Industrial	L	L	M
Shahzada Bagh	Industrial	L	M	M
Shahdara	Industrial	L	L	M
Janakpuri	Residential	L	M	C
Siri Fort	Residential	L	L	C
N.Y. School, Sarojni Nagar	Residential	L	M	C
E.S.I. Disp., Najafgarh Road	Industrial	L	L	M
Town Hall	Residential	L	M	C

3.4.3 AIR QUALITY STATISTICS : The values of monthly and annual minimum, mean and maximum alongwith the number of monitored days for 16 or more hours of three monitored parameters viz. SO_2, NO_2, and SPM are presented in Table 3.4.1.

Table 3.4.1 AMBIENT AIR QUALITY STATISTICS - 1997
STATE : Delhi

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location :Nizamuddin, Delhi												
January	17.5	18.9	20.5	7	36.3	39.2	41.0	7	327	521	748	7
February	14.8	16.1	17.5	6	38.0	39.1	40.5	6	299	471	663	6
March	15.7	17.6	19.5	6	37.7	39.1	41.7	6	216	356	541	6
April	15.5	16.3	17.8	6	36.7	37.4	38.0	6	220	322	529	6
May	13.0	14.5	16.0	5	29.2	30.5	32.7	5	350	437	550	5
June	17.8	19.7	22.8	7	34.8	39.3	41.5	7	322	424	610	7
July	17.3	19.3	21.3	7	37.8	40.1	43.0	7	226	293	412	7
August	14.0	16.8	17.8	6	33.8	35.7	36.5	6	209	327	425	6
September	16.7	18.7	20.3	7	36.5	38.3	39.8	7	286	360	523	7
October	13.2	18.1	22.7	7	33.0	35.5	38.5	7	237	318	385	7
November	15.8	18.1	20.7	6	33.8	35.1	37.2	6	179	303	427	6
December	13.8	17.0	18.0	7	35.8	37.6	40.5	7	180	227	278	7
Annual	13.0	17.7	22.8	77	29.2	37.4	43.0	77	179	362	748	77
Location :Ashok Vihar, Delhi												
January	13.2	15.9	21.7	6	19.3	23.7	26.4	6	161	374	554	6
February	12.5	14.6	17.3	7	23.2	25.5	30.0	7	269	310	390	7
March	10.0	13.2	15.6	6	18.8	23.5	26.0	6	146	289	479	6
April	10.4	14.0	16.3	6	20.7	22.2	24.8	6	295	351	470	6
May	10.5	14.2	16.0	5	20.3	26.5	29.8	5	153	257	365	6
June	8.5	13.3	18.0	6	16.0	20.8	23.8	6	257	352	517	6
July	8.7	11.5	12.6	7	16.2	20.7	25.2	7	269	385	503	7
August	10.8	12.1	13.8	5	18.3	19.6	20.8	5	154	277	452	6
September	10.3	13.3	16.2	7	19.0	22.5	28.5	7	202	309	373	7
October	13.7	18.0	24.4	6	22.7	26.6	32.0	6	156	307	444	7
November	12.2	14.1	17.7	4	16.2	20.3	27.0	4	200	271	403	6
December	14.0	16.6	18.3	5	19.4	21.8	25.3	5	119	206	306	7
Annual	8.5	14.2	24.4	70	16.0	22.9	32.0	70	119	307	554	77
Location :Shahzada Bagh, Delhi												
January	22.2	23.6	25.2	7	41.8	44.4	46.8	7	294	371	437	7
February	24.7	26.7	29.2	6	44.0	48.4	51.0	6	213	311	499	6
March	20.7	23.5	26.0	6	42.2	44.9	49.8	6	244	278	305	6
April	22.5	24.9	26.5	5	43.0	47.5	51.3	5	112	270	380	6
May	22.5	23.2	24.6	5	41.0	43.6	45.2	5	144	312	510	6

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.4.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
June	20.0	22.9	26.2	7	38.5	43.6	49.5	7	229	283	376	7
July	19.2	21.6	23.5	7	32.3	37.1	40.7	7	218	241	271	7
August	19.5	20.9	22.8	6	36.7	40.6	42.8	6	152	252	338	6
September	21.5	23.5	25.0	7	41.5	44.1	46.3	7	270	305	347	7
October	23.5	25.8	27.3	7	45.7	47.6	49.3	7	182	288	408	7
November	24.2	25.1	27.5	6	45.0	46.2	47.3	6	132	240	314	6
December	25.3	28.3	29.5	7	47.3	50.3	52.5	7	169	230	284	7
Annual	19.2	24.2	29.5	76	32.3	44.8	52.5	76	112	282	510	78
Location :Shahadra, Delhi												
January	8.8	13.0	17.0	6	20.2	27.4	37.5	6	218	400	587	7
February	8.7	21.6	51.7	6	18.8	29.4	44.6	6	225	308	411	6
March	8.0	14.3	26.2	5	17.0	31.7	55.0	5	126	306	607	6
April	10.3	13.5	20.0	6	21.5	28.9	43.0	6	222	295	457	6
May	9.5	11.9	14.8	5	30.0	34.5	39.6	5	404	495	743	6
June	7.8	9.6	11.2	5	19.8	28.1	34.5	5	143	314	513	5
July	8.5	11.7	16.5	6	23.7	28.7	32.5	6	317	415	473	7
August	15.5	17.0	18.3	6	21.7	24.5	27.5	6	207	234	257	6
September	17.8	19.3	22.7	6	24.7	26.2	28.3	6	145	235	351	7
October	20.3	21.8	23.7	6	25.8	27.2	29.7	6	244	302	330	6
November	12.0	15.5	17.7	6	24.2	27.6	31.8	6	157	244	306	6
December	19.5	20.7	21.2	6	36.7	38.6	39.8	6	131	213	262	7
Annual	7.8	16.0	51.7	69	17.0	29.3	55.0	69	126	313	743	75
Location :Janakpuri, Delhi												
January	14.8	18.2	20.0	6	37.7	38.8	40.3	6	215	378	527	6
February	13.0	15.8	17.5	7	38.3	39.2	40.5	7	367	476	533	7
March	16.2	17.2	19.5	6	38.3	39.1	39.8	6	266	410	537	6
April	14.5	15.5	16.3	5	34.0	39.0	42.3	5	152	334	429	5
May	11.0	13.6	15.3	6	28.0	32.0	34.0	6	255	378	526	6
June	16.0	17.3	18.8	5	32.0	33.6	36.2	5	116	335	422	6
July	15.2	17.2	19.3	6	36.3	38.3	39.5	6	199	285	364	7
August	11.8	15.5	24.0	6	20.2	25.8	39.0	6	78	210	328	6
September	11.2	12.8	15.2	7	29.8	35.1	37.7	7	202	306	422	7
October	15 7	17.6	19.2	4	28.5	29.3	29.8	4	70	259	474	7
November	14.2	16.9	20.2	6	28.0	30.0	32.8	6	243	362	428	6
December	11.2	12.7	14.7	7	28.3	35.5	44.8	7	254	379	573	7
Annual	11.0	15.7	24.0	71	20.2	34.8	44.8	71	70	343	573	76

Note:N.A.-Data Not Available/Inadequate, Units in µg/m^3, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.4.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location :Siri Fort, Delhi												
January	12.5	13.4	14.5	7	26.0	29.2	31.2	7	292	429	701	8
February	13.3	15.2	20.2	6	29.3	30.5	32.0	6	223	386	502	6
March	13.7	15.7	19.2	6	27.0	29.3	31.0	6	331	421	515	6
April	11.4	16.1	17.8	6	33.0	35.6	43.7	6	337	386	504	6
May	15.0	17.2	19.3	7	28.2	32.1	39.3	7	227	364	494	7
June	11.0	13.7	16.3	6	29.5	31.7	34.3	6	339	450	634	6
July	7.5	8.7	10 7	7	22.8	25.8	31.3	7	212	346	413	7
August	8.8	9.6	10 8	6	23.0	26.7	30.0	6	184	337	486	6
September	9.7	11.1	12 5	7	25.0	27.2	28.5	7	263	389	459	7
October	9.3	10.9	12.8	6	25.3	27.1	30.0	6	175	272	363	6
November	7.0	13.6	18.0	5	21.2	28.2	31.0	5	235	329	393	6
December	7.8	9.9	11.8	6	25.8	28.1	29.3	6	175	284	384	7
Annual	7.0	12.9	20.2	75	21.2	29.3	43.7	75	175	367	701	78
Location :N.Y. SCHOOL, Sarojini Nagar, Delhi												
January	6.7	12.8	20.8	6	48.2	55.2	64.7	6	272	401	532	4
February	6.7	12.7	24.2	6	30.8	43.0	54.7	6	281	329	406	4
March	10.6	17.2	25.0	5	32.2	39.9	49.2	5	207	353	435	3
April	6.3	10.6	19.7	6	17.0	26.7	35.0	6	100	329	481	4
May	9.5	16.4	26.0	5	19.8	26.5	33.3	5	128	277	337	5
June	6.0	8.2	13.0	5	16.8	19.4	24.8	5	157	292	586	4
July	6.0	6.9	9.3	6	12.3	23.0	31.2	6	85	168	218	4
August	6.0	7.0	11.2	6	7.7	16.1	22.7	6	33	133	209	4
September	6.0	6.1	6.3	6	7.7	16.2	25.0	6	166	245	306	4
October	6.0	10.3	19.2	6	23.3	36.9	46.0	6	132	286	467	4
November	6.0	9.7	14.0	6	26.0	46.4	62.2	6	387	433	478	2
December	6.0	6.7	8.5	6	28.5	35.7	42.6	6	83	297	521	7
Annual	6.0	10.2	26.0	69	7.7	32.2	64.7	69	33	288	586	49
Location :E.S.I. Dispensary, Najafgarh Road, Delhi												
January	13.7	18.8	25.0	6	50.5	65.8	91.2	6	333	732	914	4
February	9.5	21.6	40.0	6	30.2	36.7	48.2	6	523	598	693	4
March	31.2	39.7	48.2	5	23.3	38.8	58.5	5	206	260	314	3
April	12.8	21.9	34.2	6	28.5	30.9	34.3	6	218	334	421	4
May	15.8	21.6	32.5	5	30.7	38.0	50.0	5	432	514	572	3

Note:N.A.-Data Not Available/Inadequate, Units in µg/m^3, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.4.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Jnne	6.0	8.6	14.0	6	16.3	22.4	32.0	6	330	409	576	4
July	6.0	13.3	24.8	6	16.8	32.3	50.2	6	100	173	249	5
August	9.5	14.5	20.2	6	15.5	23.6	30.8	6	135	185	272	4
September	12.5	15.1	21.5	6	26.5	30.6	35.7	6	253	342	410	4
October	7.2	18.5	25.3	6	20.2	43.9	59.7	6	399	471	507	3
November	7.3	16.3	29.0	6	31.2	45.3	57.7	6	179	515	783	8
December	6.8	18.2	35.7	6	26.0	47.5	94.5	6	324	531	717	4
Annual	6.0	18.7	48.2	70	15.5	38.0	94.5	70	100	425	914	50

Location :Town Hall, Delhi

MONTH	SO2 MIN.	SO2 MEAN	SO2 MAX.	n	NO2 MIN.	NO2 MEAN	NO2 MAX.	n	SPM MIN.	SPM MEAN	SPM MAX.	n
January	11.8	23.1	30.7	6	60.0	64.3	69.8	6	458	778	1055	4
February	10.5	25.4	55.7	6	5.7	37.9	53.8	6	418	519	581	4
March	22.8	40.0	72.3	5	37.3	45.5	56.5	5	251	314	346	3
April	10.7	22.7	45.7	6	24.2	33.2	42.8	6	437	496	546	4
May	12.8	25.2	44.0	5	23.0	32.4	47.0	5	485	503	516	3
June	6.0	8.0	10.5	6	18.3	24.4	33.2	6	226	336	483	4
July	6.0	8.4	11.8	6	22.7	28.5	35.8	6	208	272	362	4
August	6.7	10.3	14.5	6	11.0	20.2	29.7	6	90	160	235	4
September	6.0	7.1	8.7	6	20.2	22.4	24.2	6	138	215	301	4
October	6.3	16.2	39.3	6	28.3	48 4	67.7	6	209	453	748	5
November	6.0	13.3	19.2	6	25.8	48.9	74.3	6	168	428	621	5
December	6.0	15.6	33.8	5	30.5	48.0	66.3	5	124	326	512	4
Annual	6.0	17.5	72.3	69	5.7	37.7	74.3	69	90	401	1055	48

Note:N.A -Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

3.5 GUJARAT

3.5.1 AIR QUALITY MONITORING NETWORK :

CITY(IES)	Industrial	Residential	Sensitive	Total
Surat		1	0	1
Vadodara	1	2	0	3
Ahmedabad	1	3	0	4
Vapi	0	1	0	1
Ankleshwar	1	1	0	2

3.5.2 AMBIENT AIR QUALITY STATUS

Annual Mean Concentration Range (µg/m3)						
	Industrial (I)	SO_2 & NO_2	SPM	Residential (R)	SO_2 & NO_2	SPM
Low	*L*	0-40	0-180	L	0-30	0-70
Moderate	*M*	40-80	180-360	M	30-60	70-140
High	*H*	80-120	360-540	H	60-90	140-210
Critical	*C*	>120	>540	C	>90	>210

		Annual Mean Concentration (µg/m3)		
City / Location	**Area Class**	**SO_2**	**NO_2**	**SPM**
CITY : Surat				
SVR Engg. College	Residential	M	L	C
CITY : Vadodara				
Nyaymandir	Residential	M	L	C
Race Course Area (G.P.C.B.)	Residential	M	L	C
I.P.C.L.	Industrial	L	L	M
CITY : Ahmedabad				
G.I.D.C., Naroda	Industrial	L	L	M

(Contd...)

Table 3.5.2 (Contd...)

		Annual Mean Concentration (μg/m3)		
City / Location	**Area Class**	**SO_2**	**NO_2**	**SPM**
L.D. Engg. College	Residential	L	L	H
Shardaben Hospital	Residential	L	L	C
R.C. High School	Residential	L	M	C
CITY : Vapi				
G.E.B. (GIDC)	Residential	M	M	C
CITY : Ankleshwar				
Rallis India Ltd. (Pharma.)	Industrial	L	L	L
D. Traders, Bhavana Farms	Residential	M	L	C

3.5.3 AIR QUALITY STATISTICS : The values of monthly and annual minimum, mean and maximum alongwith the number of monitored days for 16 or more hours of three monitored parameters viz. SO_2, NO_2, and SPM are presented in Table 3.5.1.

Table 3.5.1 AMBIENT AIR QUALITY STATISTICS - 1997
STATE : Gujarat

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location :S.V.R. Engg. College, Surat												
January	20.3	23.4	27.1	6	7.7	10.1	15.3	6	125	159	220	6
February	16.6	20.9	25.5	5	5.7	8.1	10.6	5	145	191	247	5
March	18.8	23.7	30.8	5	6.8	8.1	9.4	5	116	173	319	6
Annual	16.6	22.7	30.8	16	5.7	8.9	15.3	16	116	173	319	17
January	19.5	22.3	24.8	3	8.2	8.4	8.6	3	153	159	166	3
February	21.8	25.1	29.3	6	9.0	10.0	12.6	6	184	239	322	6
March	26.3	31.2	36.0	8	9.0	10.8	12.6	8	103	163	258	8
Annual	19.5	27.4	36.0	17	8.2	10.1	12.6	17	103	189	322	17
January	18.0	49.2	66.8	9	8.5	15.8	22.3	9	225	371	571	9
February	39.8	51.3	67.5	6	17.2	20.1	24.4	6	336	408	533	6
March	38.3	63.0	73.5	9	12.2	17.4	25.4	9	230	451	712	10
Annual	18.0	54.9	73.5	24	8.5	17.5	25.4	24	225	412	712	25
Location : Nyay Mandir, Vadodara												
January	34.0	46.8	56.2	8	7.3	12.0	20.3	8	178	395	521	8
February	23.4	40.6	62.1	8	6.5	11.0	18.4	8	144	259	447	8
March	38.6	48.8	59.8	8	9.9	13.4	21.0	8	257	353	514	8
Annual	23.4	45.4	62.1	24	6.5	12.1	21.0	24	144	336	521	24
Location :Regional Office, GPCB, Race Course Area, Vadodara												
January	24.6	36.8	50.4	8	6.2	14.2	25.9	8	139	220	279	8
February	11.0	30.1	43.3	6	4.6	10.2	22.3	6	236	269	311	6
March	25.7	37.3	48.0	6	13.1	18.9	27.1	6	195	303	439	6
Annual	11.0	34.9	50.4	20	4.6	14.4	27.1	20	139	259	439	20
Location :I.P.C.L., Vadodara												
January	28.1	38.9	55.0	8	7.1	9.1	11.2	8	200	274	369	8
February	30.4	36.7	49.2	8	6.4	8.6	11.3	8	115	273	388	8
March	26.9	33.3	42.2	8	6.2	9.5	17.2	8	177	307	395	8
Annual	26.9	36.3	55.0	24	6.2	9.0	17.2	24	115	285	395	24

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.5.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location : Naroda, G.I.D.C., Ahmedabad												
January	13.0	25.0	39.3	7	9.5	17.8	21.5	7	258	329	383	7
February	11.3	12.7	14.0	5	10.7	13.3	16.7	5	84	175	264	6
March	8.3	10.0	11.5	8	17.2	19.2	21.8	8	164	195	220	8
Annual	8.3	15.9	39.3	20	9.5	17.2	21.8	20	84	234	383	21
January	15.3	17.5	21.3	5	10.3	13.6	19.7	5	213	251	307	5
February	10.2	14.3	18.0	5	4.0	5.0	6.0	5	126	181	222	5
March	13.8	14.6	15.3	2	5.7	5.9	6.0	2	83	156	205	3
Annual	10.2	15.7	21.3	12	4.0	8.7	19.7	12	83	202	307	13
January	7.0	9.0	11.5	5	5.0	6.6	8.2	5	178	227	260	5
February	6.7	6.9	7.2	5	14.7	15.6	16.5	5	194	227	332	5
March	6.3	6.9	7.5	6	13.8	17.0	19.3	6	191	207	228	6
Annual	6.3	7.6	11.5	16	5.0	13.3	19.3	16	178	219	332	16
Location : L.D. Engineering College, Ahmedabad												
January	6.2	18.7	34.5	6	3.0	11.3	18.3	6	282	315	386	4
February	6.0	10.1	18.3	6	4.2	17.1	29.5	6	326	471	675	4
March	6.0	9.8	22.3	6	5.8	16.3	25.2	6	181	260	395	4
April	6.0	17.7	54.0	6	7.0	10.2	20.0	6	147	201	279	4
May	6.0	6.3	7.0	6	3.7	10.6	20.2	6	87	161	238	4
June	6.0	6.1	6.5	6	3.5	7.3	13.0	6	85	114	153	4
July	6.0	6.2	7.3	6	3.0	11.6	18.5	6	37	81	136	4
August	6.0	7.9	10.5	6	3.0	7.6	14.7	6	60	92	139	4
September	6.0	7.7	15.0	6	4.0	7.4	16.5	6	65	109	163	4
October	6.2	12.2	26.8	6	8.0	16.1	23.0	6	94	170	244	4
November	6.0	10.4	17.7	6	14.0	19.2	25.8	6	154	198	261	4
December	6.0	11.2	15.7	6	16.3	20.9	28.2	6	126	163	210	4
Annual	6.0	10.4	54.0	72	3.0	13.0	29.5	72	37	194	675	48
Location :Shardaben Hospital, Ahmadabad												
January	6.0	31.1	62.3	6	11.5	17.1	23.5	6	237	362	570	4
February	13.3	24.3	40.5	6	12.5	29.2	46.0	6	342	423	492	4
March	9.7	29.9	62.2	6	21.0	30.7	44.2	6	290	453	635	4
April	6.3	41.9	73.2	6	10.2	15.8	27.3	6	140	254	425	4
May	6.0	15.3	42.7	6	11.3	19.5	29.0	6	126	234	416	4
June	6.0	10.4	25.0	6	12.2	19.7	37.8	6	111	142	209	4
July	6.0	11.3	23.2	6	3.0	14.9	26.0	6	37	108	185	4

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.5.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
August	9.8	20.6	39.2	6	5.3	14.5	23.7	6	152	206	279	4
September	6.7	22.9	48.7	6	9.7	12.1	18.8	6	84	135	205	4
October	22.7	32.7	54.7	6	10.5	19.4	28.7	6	135	191	228	4
November	6.0	17.1	43.2	6	18.5	22.7	25.7	6	141	161	206	4
December	12.2	21.6	36.5	6	20.8	24.3	30.0	6	78	147	242	4
Annual	6.0	23.2	73.2	72	3.0	20.0	46.0	72	37	235	635	48

Location :R.C. High School, Ahmadabad

MONTH	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
January	7.2	32.8	64.3	6	9.8	20.3	27.5	6	326	461	609	4
February	7.5	21.1	35.8	6	11.2	34.4	51.5	6	517	606	675	4
March	6.2	22 3	53.3	6	17.2	46.5	84.0	6	348	435	522	4
April	6.0	35.0	85.5	6	11.5	27.8	74 8	6	223	327	375	4
May	6.0	7.9	10.0	6	11.7	44.7	92.8	6	188	280	377	4
June	6.0	8.3	10.8	6	3.0	49 8	119.5	6	94	137	169	4
July	6.0	8.4	19 7	6	3.0	44.0	88.3	6	34	98	175	4
August	6.0	18.4	41.7	6	3.0	20.7	46.5	6	139	195	231	4
September	6.0	14.7	32.2	6	10.8	28.3	70.3	6	116	158	212	4
October	9.3	28.0	48.2	6	11.7	22.8	34.8	6	182	230	290	4
November	9.8	23.0	45.3	6	17.8	33 3	67.2	6	240	315	370	4
December	6.2	11.8	24.8	6	25.0	29.3	32.7	6	184	272	360	4
Annual	6.0	19.3	85.5	72	3.0	33.5	119.5	72	34	293	675	48

Location :GEB, GIDC, Vapi

MONTH	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
January	6.2	39.6	74.0	6	15.3	36.5	57.2	6	184	297	553	6
February	53.3	58.3	63.3	2	14.3	37.8	61.3	2	235	290	345	2
March	20.0	28.8	41.3	8	25.5	47.7	97.7	8	227	386	604	8
Annual	6.2	36.6	74.0	16	14.3	42.2	97.7	16	184	341	604	16
January	6.0	31.3	75.7	8	12.3	18.0	36.2	8	174	325	523	8
February	53.2	54.0	54.8	2	54.8	57.9	61.0	2	208	253	297	2
March	19.5	28.0	42.0	8	21.3	57.5	79.0	8	163	334	506	8
Annual	6.0	32.4	75.7	18	12.3	40.0	79.0	18	163	321	523	18

Location : Rallis India Ltd., Ankleshwar

MONTH	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
January	7.2	20.1	28.8	8	7.1	12.5	26.2	8	130	168	256	8
February	7.7	30.0	49.9	8	4.5	8.7	11.3	8	122	144	163	8
March	17.5	33.1	49.4	6	17.3	37.3	65.7	6	139	203	259	6
Annual	7.2	27.2	49.9	22	4.5	17.9	65.7	22	122	169	259	22

Note.N A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.5.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location : Durga Traders, Bhawnafarm, Ankleshwar												
January	10.9	16.2	21.1	8	5.1	10.5	14.4	8	125	156	253	8
February	11.2	26.9	64.2	8	3.2	8.6	15.1	8	121	145	170	8
March	16.2	28.0	50.1	7	4.9	22.8	50.9	7	124	143	195	7
Annual	10.9	23.5	64.2	23	3.2	13.6	50.9	23	121	148	253	23
February	12.0	20.2	29.3	6	7.3	14.4	23.7	6	558	655	761	6
Annual	12.0	20.2	29.3	6	7.3	14.4	23.7	6	558	655	761	6
February	24.0	35.7	47.3	8	19.2	27.9	33.8	8	750	976	1198	8
Annual	24.0	35.7	47.3	8	19.2	27.9	33.8	8	750	976	1198	8

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

3.6 GOA

3.6.1 AIR QUALITY MONITORING NETWORK :

CITY(IES)	Industrial	Residential	Sensitive	Total
Ponda	0	1	0	1
Vasco	1	0	0	1

3.6.2 AMBIENT AIR QUALITY STATUS

Annual Mean Concentration Range (µg/m3)						
	Industrial (I)	**SO_2 & NO_2**	**SPM**	**Residential (R)**	**SO_2 & NO_2**	**SPM**
Low	*L*	0-40	0-180	L	0-30	0-70
Moderate	*M*	40-80	180-360	M	30-60	70-140
High	*H*	80-120	360-540	H	60-90	140-210
Critical	*C*	>120	>540	C	>90	>210

		Annual Mean Concentration (µg/m3)		
City / Location	**Area Class**	**SO_2**	**NO_2**	**SPM**
CITY : **Ponda**				
Head Office	Residential	L	L	M
CITY : **Vasco**				
Vasco	Industrial	L	L	L

3.6.3 AIR QUALITY STATISTICS : The values of monthly and annual minimum, mean and maximum alongwith the number of monitored days for 16 or more hours of three monitored parameters viz. SO_2, NO_2, and SPM are presented in Table 3.6.1.

Table 3.6.1 AMBIENT AIR QUALITY STATISTICS - 1997

STATE : Goa

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location :Head Office, Ponda, Goa												
January	6.6	12.8	28.3	6	19.2	28.8	45.0	8	119	142	180	9
February	7.0	11.5	27.8	8	15.0	22.3	26.5	8	101	158	186	8
March	8.0	11.3	25.4	9	14.5	21.8	27.7	9	102	144	176	9
April	6.5	9.1	12.2	8	14.2	18.8	26.2	9	104	150	199	9
May	8.4	10.0	13.5	12	19.0	22.1	27.3	13	96	175	269	13
June	7.8	13.8	30.4	12	14.7	18.8	29.0	12	68	111	198	12
July	6.3	12.2	21.3	14	16.2	20.8	28.8	14	41	94	138	14
August	7.0	10.3	15.5	13	12.5	18.6	22.3	13	45	88	146	13
September	7.2	11.2	19.2	12	13.8	17.4	19.5	12	68	93	122	12
October	6.5	9.4	13.7	10	13.7	18.2	26.3	10	66	100	144	10
Annual	6.3	11.2	30.4	104	12.5	20.5	45.0	108	41	123	269	109
Location :Vasco, Goa												
January	7.6	10.5	15.2	7	18.3	22.1	33.7	7	59	104	196	9
February	7.7	9.9	12.3	8	17.2	19.7	24.5	8	80	125	181	8
March	7.8	11.3	17.5	7	8.2	15.7	21.0	8	92	120	152	8
April	7.2	8.9	10.5	9	13.2	16.8	20.0	9	72	108	174	9
May	7.8	9.9	14.2	12	15.0	21.7	31.7	12	129	182	311	12
June	8.3	10.4	17.3	11	13.3	19.1	23.3	11	43	89	166	12
July	6.7	9.3	13.0	12	15.0	18.8	23.3	12	19	66	119	12
August	7.3	[illegible]	15.5	11	10.2	17.0	21.7	11	21	45	85	12
September	8.0	9.8	[illegible]	[illegible]	12.3	17.1	25.5	13	31	69	139	13
October	6.0	7.6	12.2	[illegible]	[illegible]	14.4	21.0	14	40	61	85	14
Annual	6.0	9.7	17.5	103	8.2	18.1	33.7	105	19	94	311	109

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

3.7 HIMACHAL PRADESH

3.7.1 AIR QUALITY MONITORING NETWORK :

CITY(IES)	Industrial	Residential	Sensitive	Total
Damtal	0	1	0	1
Parwanoo	1	1	0	2
Paonta Sahib	1	1	0	2
Shimla	0	1	1	2

3.7.2 AMBIENT AIR QUALITY STATUS

Annual Mean Concentration Range (µg/m3)						
	Industrial (I)	SO_2 & NO_2	SPM	Residential (R)	SO_2 & NO_2	SPM
Low	*L*	0-40	0-180	L	0-30	0-70
Moderate	*M*	40-80	180-360	M	30-60	70-140
High	*H*	80-120	360-540	H	60-90	140-210
Critical	*C*	>120	>540	C	>90	>210

		Annual Mean Concentration (µg/m3)		
City / Location	Area Class	SO_2	NO_2	SPM
CITY : Shimla				
Tekka Bench Ridge	Sensitive	L	M	M
Bus Stand, Winterfield	Residential	L	L	M
CITY : Damtal				
Regiional Office	Residential	L	L	M
CITY : Parwanoo				
V. Farm Indl. Area, Sec.-1	Industrial	L	L	L
Regional Office	Residential	L	L	M
CITY : Paonta Shib				
P.S. Industrial Area	Industrial	L	L	L
Gondhpur Indl. Area	Industrial	L	L	M

3.7.3 AIR QUALITY STATISTICS : The values of monthly and annual minimum, mean and maximum alongwith the number of monitored days for 16 or more hours of three monitored parameters viz. SO_2, NO_2, and SPM are presented in Table 3.7.1.

Table 3.7.1 AMBIENT AIR QUALITY STATISTICS - 1997
STATE : Himachal Pradesh

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location :Tekka Bench Ridge, Simla												
January	6.0	6.1	7.2	12	4.5	8.9	12.5	12	N.A.	N.A.	N.A.	0
February	6.0	6.2	7.9	9	3.7	10.1	37.5	9	N.A.	N.A.	N.A.	0
March	6.0	6.0	6.3	8	6.3	7.7	9.4	8	N.A.	N.A.	N.A.	0
April	6.0	6.3	7.5	15	5.5	9.3	25.1	15	20	65	101	11
May	6.0	6.0	6.2	11	8.1	9.8	13.9	11	34	76	116	11
June	6.0	6.2	7.2	12	7.9	11.5	21.7	12	35	82	149	13
July	6.0	6.0	6.2	12	5.6	10.6	16.8	12	29	79	152	12
August	6.0	6.2	7.2	8	5.4	9.6	16.3	8	14	30	57	7
September	6.0	6.3	7.9	12	8.8	14.7	29.4	12	28	45	70	11
October	6.0	6.1	7.1	12	4.9	11.0	16.6	12	16	28	59	5
November	6.0	6.0	6.0	12	3.2	7.1	12.8	12	50	50	50	1
December	6.0	6.1	7.2	13	3.1	7.9	16.9	13	9	32	62	12
Annual	6.0	6.1	7.9	136	3.1	9.9	37.5	136	9	58	152	83
Location :Bus Stand, Winterfield, Simla												
January	6.0	6.4	9.0	11	7.6	13.0	17.4	11	N.A.	N.A.	N.A.	0
February	6.0	6.6	8.4	11	8.7	12.6	17.5	11	N.A.	N.A.	N.A.	0
March	6.0	6.3	7.7	16	8.5	13.9	23.9	16	N.A.	N.A.	N.A.	0
April	6.0	6.4	7.8	9	6.1	12.2	22.5	9	94	104	123	6
May	6.0	6.2	7.6	13	10.8	14.5	19.0	13	48	96	136	13
June	6.0	7.0		12	10.0	22.9	40.9	12	19	94	161	12
July	6.0	6.2	7.7	12	10.1	30.2	57.7	12	62	117	219	13
August	6.0	6.3	6.9	11	11.3	23.9	40.0	11	59	97	144	9
September	6.0	6.1	6.7	11	15.3	20.6	26.7	11	28	79	152	12
October	6.0	6.3	7.3	11	8.0	19.5	49.1	11	58	66	72	3
November	6.0	6.0	6.2	11	6.8	14.9	23.6	11	59	87	115	2
December	6.0	6.6	9.1	12	5.9	16.2	24.8	12	59	101	165	10
Annual	6.0	6.4	13.7	140	5.9	17.9	57.7	140	19	97	219	80
Location :P.S. Industrial Area, Poanta Sahib												
January	N.A.	N.A.	N.A.	0	N.A.	9.4	11.5	8	54	141	237	9
February	N.A.	N.A.	N.A.	0	N.A.	8.7	8.7	1	96	134	184	8
March	N.A.	N.A.	N.A.	0	N.A.	7.7	9.3	13	N.A.	N.A.	N.A.	0
April	N.A.	N.A.	N.A.	0	N.A.	9.6	12.5	13	N.A.	N.A.	N.A.	0

Note:N.A.-Data Not Available/Inadequate, Units in µg/m^3, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.7.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
May	N.A.	N.A.	N.A.	0	N.A.	8.6	11.1	13	179	241	372	13
June	N.A.	N.A.	N.A.	0	N.A.	8.7	9.4	13	126	182	269	13
July	N.A.	N.A.	N.A.	0	N.A.	8.4	9.8	13	112	168	302	13
August	N.A.	N.A.	N.A.	0	N.A.	7.5	8.9	12	49	93	160	12
September	N.A.	N.A.	N.A.	0	N.A.	9.0	9.8	12	102	209	337	12
October	N.A.	N.A.	N.A.	0	N.A.	6.1	7.7	14	109	133	181	4
November	N.A.	N.A.	N.A.	0	N.A.	7.0	9.8	11	N.A.	N.A.	N.A.	0
Annual	N.A.	N.A.	N.A.	0	N.A.	8.2	12.5	123	49	169	372	84
Location :Gonduhpur Industrial Area, Poanta Sahib												
January	N.A.	N.A.	N.A.	0	N.A.	8.8	10.7	8	74	174	237	8
February	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	100	139	204	8
March	N.A.	N.A.	N.A.	0	N.A.	6.7	9.1	12	N.A.	N.A.	N.A.	0
April	N.A.	N.A.	N.A.	0	N.A.	8.2	10.3	13	N.A.	N.A.	N.A.	0
May	N.A.	N.A.	N.A.	0	N.A.	8.4	12.0	14	93	207	343	13
June	N.A.	N.A.	N.A.	0	N.A.	7.4	9.2	12	150	214	316	12
July	N.A.	N.A.	N.A.	0	N.A.	7.8	9.3	14	68	181	331	14
August	N.A.	N.A.	N.A.	0	N.A.	6.5	8.4	13	43	152	280	13
September	N.A.	N.A.	N.A.	0	N.A.	7.2	8.8	13	145	235	370	13
October	N.A.	N.A.	N.A.	0	N.A.	6.4	11.2	12	122	175	211	4
November	N.A.	N.A.	N.A.	0	N.A.	6.5	8.7	13	N.A.	N.A.	N.A.	0
Annual	N.A.	N.A.	N.A.	0	N.A.	7.4	12.0	124	43	189	370	85
Location :Vikram Farm Industrial Area, Sector 1, Parwanoo												
January	N.A.	N.A.	N.A.	0	N.A.	10.8	24.5	9	44	85	125	9
February	N.A.	N.A.	N.A.	0	N.A.	12.5	17.5	8	66	91	138	8
March	6.0	6.1	6.2	3	9.1	14.8	25.4	11	227	331	434	2
April	N.A.	N.A.	N.A.	0	N.A.	16.8	33.2	13	167	197	230	4
May	N.A	N.A.	N.A.	0	N.A.	11.9	19.3	14	62	192	327	14
June	N.A.	N.A.	N.A.	0	N.A.	11.5	26.9	12	89	165	261	12
July	N.A.	N.A.	N.A.	0	N.A.	13.9	28.5	12	63	132	296	14
August	N.A.	N.A.	N.A.	0	N.A.	9.9	15.3	10	56	129	218	11
September	N.A.	N.A.	N.A.	0	N.A.	27.6	87.8	10	96	152	232	12
October	N.A.	N.A.	N.A.	0	N.A.	14.0	38.1	14	38	48	55	3
November	N.A.	N.A.	N.A.	0	N.A.	11.5	18.2	11	N.A.	N.A.	N.A.	0
December	N.A.	N.A.	N.A.	0	N.A.	10.1	13.1	10	25	55	96	14
Annual	6.0	6.1	6.2	3	3.5	13.8	87.8	134	25	132	434	103

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.7.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location :Regional Office, Parwanoo												
January	6.0	6.1	6.2	2	18.5	31.5	64.5	8	108	252	337	8
February	6.0	6.0	6.0	1	10.3	18.3	31.5	7	124	206	279	7
March	9.1	9.1	9.1	1	3.4	13.8	29.4	11	121	176	231	2
April	N.A.	N.A.	N.A.	0	N.A.	8.6	15.3	10	63	83	109	4
May	N.A.	N.A.	N.A.	0	N.A.	11:9	21.5	13	44	108	199	13
June	N.A.	N.A.	N.A.	0	N.A.	11.0	18.6	13	44	125	289	13
July	N.A.	N.A.	N.A.	0	N.A.	10.0	17.7	11	27	89	217	13
August	N.A.	N.A.	N.A.	0	N.A.	8.8	15.3	10	16	47	83	12
September	N.A.	N.A.	N.A.	0	N.A.	14.5	28.2	13	31	64	105	13
October	N.A.	N.A.	N.A.	0	N.A.	15.1	20.7	10	110	110	110	1
November	N.A.	N.A.	N.A.	0	N.A.	17.3	21.4	11	N.A.	N.A.	N.A.	0
December	N.A.	N.A.	N.A.	0	N.A.	15.5	20.5	12	51	143	205	12
Annual	6.0	6.8	9.1	4	3.4	14.2	64.5	129	16	118	337	98
Location :Regional Office, Damtal												
January	N.A.	N.A.	N.A.	0	N.A.	9.9	19.9	9	N.A.	N.A.	N.A.	0
February	N.A.	N.A.	N.A.	0	N.A.	12.9	17.7	13	66	66	66	1
April	N.A.	N.A.	N.A.	0	N.A.	10.6	13.1	13	N.A.	N.A.	N.A.	0
May	N.A.	N.A.	N.A.	0	N.A.	13.4	30.3	13	35	135	374	13
June	N.A.	N.A.	N.A.	0	N.A.	12.7	24.6	11	39	105	241	11
July	N.A.	N.A.	N.A.	0	N.A.	10.5	14.3	13	59	101	167	13
August	N.A.	N.A.	N.A.	0	N.A.	9.3	12.9	12	45	89	157	12
September	N.A.	N.A.	N.A.	0	N.A.	9.9	11.1	13	48	63	83	4
October	N.A.	N.A.	N.A.	0	N.A.	9.2	11.6	14	N.A.	N.A.	N.A.	0
November	6.0	6.1	6.2	2	5.7	8.6	10.7	9	N.A.	N.A.	N.A.	0
December	6.0	6.4	7.5	4	3.8	7.1	12.3	13	28	87	161	14
Annual	6.0	6.3	7.5	6	3.8	10.4	30.3	133	28	100	374	68

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

3.8 HARYANA

3.8.1 AIR QUALITY MONITORING NETWORK :

CITY(IES)	Industrial	Residential	Sensitive	Total
Faridabad	1		0	1
Yamuna Ngr.	1	0	0	1

3.8.2 AMBIENT AIR QUALITY STATUS

Annual Mean Concentration Range (µg/m3)						
	Industrial (I)	SO_2 & NO_2	SPM	Residential (R)	SO_2 & NO_2	SPM
Low	*L*	0-40	0-180	L	0-30	0-70
Moderate	*M*	40-80	180-360	M	30-60	70-140
High	*H*	80-120	360-540	H	60-90	140-210
Critical	*C*	>120	>540	C	>90	>210

		Annual Mean Concentration (µg/m3)		
City / Location	Area Class	SO_2	NO_2	SPM
CITY : Faridabad				
Escorts Medical Centre	Industrial	L	L	H
CITY : Yamuna Nagar				
Ballarpur Industries	Industrial	L	L	L

3.8.3 AIR QUALITY STATISTICS : The values of monthly and annual minimum, mean and maximum alongwith the number of monitored days for 16 or more hours of three monitored parameters viz. SO_2, NO_2, and SPM are presented in Table 3.8.1.

Table 3.8.1 AMBIENT AIR QUALITY STATISTICS - 1997
STATE : Haryana

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location : Escorts Medical Centre, Faridabad												
January	28.0	37.9	42.0	9	11.7	14.2	16.3	9	289	424	526	9
February	32.7	39.2	42.0	6	13.5	15.4	16.3	6	385	447	517	6
March	37.8	39.2	40.5	6	14.7	15.6	16.7	6	294	377	445	6
April	34.2	36.7	38.7	8	12.0	13.7	14.8	8	183	355	517	8
May	26.5	36.7	40.0	9	10.2	14.9	16.5	9	135	420	548	9
June	31.5	37.7	41.7	7	9.7	14.2	17.2	7	252	406	524	7
Annual	26.5	37.8	42.0	45	9.7	14.6	17.2	45	135	405	548	45
Location :Ballarpur Industries, Yamunanagar												
January	17.2	26.3	31.8	8	7.2	14.6	20.6	8	49	92	144	7
February	24.5	31.5	39.3	8	17.6	20.8	25.1	8	135	207	254	8
March	18.4	29.2	38.2	8	9.1	18.2	26.1	8	73	218	321	8
April	21.7	27.0	33.7	6	11.2	16.7	22.5	6	82	145	236	7
May	21.9	28.1	34.6	7	14.2	19.3	25.2	7	76	185	297	7
June	14.8	26.4	35.3	4	7.1	16.9	23.7	4	57	166	339	4
July	21.3	28.2	35.8	7	12.9	19.1	25.1	7	113	130	142	7
August	17.8	22.9	29.3	7	12.0	16.4	22.2	7	66	108	186	7
September	28.0	31.4	34.3	7	14.9	17.1	21.0	7	68	117	146	7
November	23.1	25.9	32.1	6	17.6	18.6	20.5	6	61	94	117	6
December	19.5	27.3	33.7	8	13.4	18.4	23.5	8	47	99	159	8
Annual	14.8	27.8	39.3	76	7.1	17.9	26.1	76	47	143	339	76

Note:N.A.-Data Not Available/Inadequate, Units in µg/m^3, N-Number of observation with >=16 hours monitoring days

3.9 KARNATAKA

3.9.1 AIR QUALITY MONITORING NETWORK :

CITY(IES)	Industrial	Residential	Sensitive	Total
Mysore	2	0	0	2
Bangalore	2	1	0	3

3.9.2 AMBIENT AIR QUALITY STATUS

Annual Mean Concentration Range (µg/m3)						
	Industrial (I)	SO_2 & NO_2	SPM	Residential (R)	SO_2 & NO_2	SPM
Low	*L*	0-40	0-180	L	0-30	0-70
Moderate	*M*	40-80	180-360	M	30-60	70-140
High	*H*	80-120	360-540	H	60-90	140-210
Critical	*C*	>120	>540	C	>90	>210

		Annual Mean Concentration (µg/m3)		
City / Location	Area Class	SO_2	NO_2	SPM
CITY : Mysore				
K.R.Circles (Visw. Bldg.)	Industrial	L	L	L
K.I.A.D.B. Bldg.	Industrial	L	L	L
City : Bangalore				
Graphite India	Industrial	L	L	L
AMCO Batteries	Industrial	L	L	M
Anand Rao Circle	Residential	M	L	C

3.9.3 AIR QUALITY STATISTICS : The values of monthly and annual minimum, mean and maximum alongwith the number of monitored days for 16 or more hours of three monitored parameters viz. SO_2, NO_2, and SPM are presented in Table 3.9.1.

Table 3.9.1 AMBIENT AIR QUALITY STATISTICS - 1997
STATE : Karnataka

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location :K.R.Circle, Visvesvaraya Bldg., Mysore												
January	33.7	38.1	42.3	7	29.5	34.7	38.2	7	60	105	132	8
February	32.3	35.6	37.7	8	36.3	37.5	38.5	8	100	111	126	8
March	30.7	34.4	37.7	8	29.5	33.6	38.0	8	92	120	138	8
April	26.8	30.3	35.5	6	35.5	37.5	39.2	6	113	124	136	6
May	22.5	28.5	33.5	8	28.8	32.4	37.5	8	91	114	133	8
June	26.5	29.8	31.8	8	27.2	29.6	32.7	8	80	115	139	8
July	23.3	25.7	28.3	8	20.7	22.7	27.8	8	106	128	192	8
August	28.7	32.5	38.5	9	24.5	27.4	31.3	9	79	103	124	9
September	30.0	36.7	43.8	8	23.5	25.8	27.7	8	103	125	152	8
October	30.3	33.2	34.8	7	22.7	24.8	27.5	7	44	92	125	8
November	29.5	31.2	33.2	8	23.8	25.3	26.7	8	76	96	135	8
Annual	22.5	32.3	43.8	85	20.7	29.9	39.2	85	44	112	192	87
Location :K.I.A.D.B. Bldg., Mysore												
January	32.8	35.1	37.5	8	31.8	34.8	37.8	8	100	116	140	8
February	33.2	36.1	38.8	8	34.7	36.4	40.2	8	74	113	135	8
March	32.2	34.4	36.2	6	33.2	34.9	38.2	6	111	129	145	6
April	26.2	29.1	34.2	6	34.7	35.7	36.5	6	101	117	131	6
May	27.3	31.7	37.5	8	30.0	32.8	34.7	8	107	126	148	8
June	29.7	31.5	34.3	9	25.0	29.6	33.3	9	81	106	133	9
July	23.5	26.3	28.7	8	19.0	22.6	27.7	8	71	81	98	8
August	29.2	31.7	33.8	8	26.5	28.1	31.3	8	56	71	82	8
September	31.0	35.0	39.0	8	20.5	24.8	29.7	8	44	90	117	9
October	32.5	36.3	44.7	7	24.8	26.8	29.2	7	71	80	94	7
November	22.5	29.4	33.8	8	18.5	23.2	26.7	8	55	78	108	8
Annual	22.5	32.4	44.7	84	18.5	29.8	40.2	84	44	100	148	85
Location :Graphite India, Bangalore												
January	16.7	20.6	28.1	10	12.0	16.0	21.8	10	77	146	325	10
February	19.7	24 5	30.0	8	11.8	14.9	19.7	8	107	177	324	8
March	20.0	27.0	32.0	8	12.3	16.6	18.3	8	46	73	116	8
April	19.8	26.5	29.0	8	14.3	16.4	18.3	8	18	70	128	8
May	21.8	24.9	28.0	8	14.5	15.7	17.8	8	90	144	236	8
June	21 8	25 5	30.2	7	13.2	15.4	17.0	7	96	120	151	7

Note:N.A.-Data Not Available/Inadequate, Units in µg/m³, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.9.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
July	21.8	23.6	27.0	9	13.2	14.9	17.0	9	31	143	299	9
August	21.8	22.4	24.0	8	9.3	14.0	17.0	8	94	141	262	8
September	17.7	20.7	23.8	9	12.0	14.1	16.7	9	49	96	184	9
October	17.7	25.2	33.7	9	13.2	21.7	35.3	9	31	50	104	9
November	20.2	29.2	53.0	8	19.0	24.1	31.3	8	35	70	116	8
December	21.3	35.5	44.8	8	20.5	30.0	34.0	8	98	190	473	8
Annual	16.7	25.3	53.0	100	9.3	17.8	35.3	100	18	118	473	100
Location : AMCO Batteries, Bangalore												
January	18.7	25.9	43.5	9	11.5	18.1	28.5	9	92	199	359	9
February	25.0	32.9	45.8	6	13.3	19.0	23.2	6	90	187	238	8
March	31.0	35.2	38.8	7	19.0	23.8	32.5	7	142	182	237	7
April	24.0	27.8	32.2	8	13.2	16.0	18.3	8	121	165	222	8
May	26.0	28.9	35.3	8	13.2	17.8	30.0	8	167	212	273	8
June	28.0	29.0	30.0	4	17.0	17.7	18.3	4	85	124	156	7
July	21.8	24.5	28.0	9	13.2	15.6	20.3	9	112	147	177	9
August	17.7	21.7	28.0	8	10.7	14.2	17.5	8	115	157	197	8
September	15.5	20.2	23.8	9	10.7	13.8	17.0	9	145	201	325	9
October	16.6	26.5	35.2	7	17.0	23.5	33.5	7	186	243	342	7
November	12.3	29.2	52.0	8	13.8	23.1	30.8	8	163	226	280	8
December	21.5	37.2	54.8	10	21.7	30.1	36.0	10	129	193	246	10
Annual	12.3	28.1	54.8	93	10.7	19.5	36.0	93	85	186	359	98
Location :Anand Rao Circle, Bangalore												
January	25.0	30.1	33.6	7	13.5	18.7	23.0	7	72	194	315	9
February	19.7	35.3	56.0	5	15.7	20.0	23.6	5	170	261	385	8
March	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	101	181	323	4
April	25.0	30.7	43.7	6	15.8	18.3	23.3	6	104	210	401	8
May	38.8	44.4	50.0	2	22.8	41.1	59.3	2	199	238	277	2
June	29.0	31.6	35 2	6	17.0	21.9	25.8	6	171	226	305	6
July	26.0	28.0	30.2	8	16.6	18.4	21.0	8	78	216	352	9
August	21.8	25.2	30.0	7	17.0	18.1	19.7	7	109	179	308	8
September	25.8	31.4	34.3	6	17.2	19.4	21.0	6	139	227	332	6
October	19.0	27.4	32.8	8	16.3	24.4	33.2	8	169	239	273	8
November	9.5	25.8	36.8	7	21.5	28.3	34.7	7	69	211	323	7
December	23.5	39.1	50.0	5	20.0	29.0	35.5	5	151	315	855	5
Annual	9.5	30.3	56.0	67	13.5	22.1	59.3	67	69	222	855	80

Note·N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

3.10 KERALA

3.10.1 AIR QUALITY MONITORING NETWORK :

CITY(IES)	Industrial	Residential	Sensitive	Total
Cochin	4	2	0	6
Kottayam	1	1	0	2
Kozhikode	0	2	0	2
Thiruvanan.	1	2	0	3

3.10.2 AMBIENT AIR QUALITY STATUS

Annual Mean Concentration Range (µg/m3)						
	Industrial (I)	SO_2 & NO_2	SPM	Residential (R)	SO_2,& NO_2	SPM
Low	*L*	0-40	0-180	L	0-30	0-70
Moderate	*M*	40-80	180-360	M	30-60	70-140
High	*H*	80-120	360-540	H	60-90	140-210
Critical	*C*	>120	>540	C	>90	>210

		Annual Mean Concentration (µg/m3)		
City / Location	**Area Class**	**SO_2**	**NO_2**	**SPM**
CITY : Cochin				
Eloor	Industrial	L	L	L
Irumpanam	Industrial	L	L	L
Ernakulam North	Industrial	L	L	L
Cochin Port Trust (M.G. Rd.)	Residential	L	L	M
CSIR Complex	Residential	L	L	M
CRL Guest House	Industrial	L	L	1
CITY : Thiruvananthapuram				
Travancore Sulphate Ltd.	Industrial	L	L	M
SMV School	Residential	L	L	M
Pattor	Residential	L	L	M
CITY : Kottayam				
Chingavanam	Industrial	L	L	L
Kottayam	Residential	L	L	L

Contd...

Table 3.10.2 (Contd...)

		Annual Mean Concentration (μg/m3)		
City / Location	**Area Class**	**SO_2**	**NO_2**	**SPM**
CITY : **Kozhikode**				
Mavoor	Residential	L	L	M
Palayam	Residential	L	L	M

3.10.3 AIR QUALITY STATISTICS : The values of monthly and annual minimum, mean and maximum alongwith the number of monitored days for 16 or more hours of three monitored parameters viz. SO_2, NO_2, and SPM are presented in Table 3.10.1.

Table 3.10.1 AMBIENT AIR QUALITY STATISTICS - 1997
STATE : Kerala

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location : Eloor, Cochin												
January	8.3	12.3	16.1	8	4.6	13.4	21.2	8	10	46	146	8
February	7.9	11.5	18.4	8	3.0	9.2	42.0	8	17	40	81	8
March	6.0	10.7	28.7	8	3.0	8.4	22.3	7	24	46	93	8
April	6.0	6.0	6.0	8	3.5	23.2	124.1	8	31	69	114	8
May	6.0	6.0	6.0	8	4.7	8.3	21.3	8	29	61	128	8
June	6.0	6.0	6.0	8	5.5	11.3	17.6	8	29	67	163	8
July	6.0	6.5	7.8	8	3.0	10.1	21.1	8	23	46	99	8
August	6.0	6.0	6.1	8	4.6	12.6	21.8	8	30	46	75	8
September	6.0	6.0	6.0	8	3.7	7.7	21.8	8	18	48	148	8
October	6.0	6.0	6.0	8	5.8	13.5	25.2	8	2	21	42	8
November	6.0	6.0	6.0	8	3.4	4.6	6.0	8	31	93	439	8
December	6.0	6.0	6.0	8	4.1	5.6	7.5	8	22	49	130	8
Annual	6.0	7.4	28.7	96	3.0	10.7	124.1	95	2	53	439	96
Location :Irumpanam, Cochin												
January	6.0	11.0	19.0	8	5.3	12.9	17.1	8	28	50	100	8
February	6.0	9.4	12.8	8	3.0	11.6	59.8	8	14	46	96	8
March	6.0	18.6	82.0	8	3.0	26.8	140.1	8	21	46	126	8
April	6.0	7.2	10.5	8	3.0	7.9	40.9	8	47	84	151	8
May	6.0	6.0	6.0	8	3.0	3.0	3.0	8	42	76	106	8
June	6.0	6.9	12.8	8	3.0	3.7	4.8	8	9	30	86	8
July	6.0	6.1	6.4	8	3.0	14.7	67.3	8	30	114	310	8
August	6.0	8.5	15.9	8	3.0	3.0	3.0	8	48	115	281	8
September	6.0	6.2	6.8	8	3.0	3.0	3.0	8	46	137	396	8
October	6.0	8.6	26.7	8	3.0	3.1	3.6	8	56	288	741	8
November	6.0	8.1	14.8	8	3.0	3.0	3.0	8	86	550	2506	8
December	6.0	6.0	6.0	8	3.0	3.0	3.0	8	76	279	450	8
Annual	6.0	8.6	82.0	96	3.0	8.0	140.1	96	9	151	2506	96
Location :Ernakulam North, Cochin												
January	6.0	10 7	16.7	8	3.0	17.1	38.0	8	51	137	225	8
February	6 1	10 0	16.9	8	3.0	21.1	36.2	8	11	57	96	8
March	6 1	7 4	9.7	8	3.0	9.7	31.6	8	62	109	195	8
April	6.0	6.9	12.5	8	3.0	4.8	17.1	8	39	63	99	8

Note:N.A.-Data Not Available/Inadequate, Units in µg/m^3, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.10.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
May	6.0	6.2	7.0	8	3.0	3.0	3.1	8	31	60	89	8
June	6.0	6.0	6.0	8	3.0	9.2	16.9	8	25	126	349	8
July	6.0	6.2	7.0	8	3.0	5.3	18.6	8	27	43	67	8
August	6.0	7.5	13.3	8	3.0	3.1	3.9	8	19	55	100	8
September	6.0	6.4	9.3	8	3.0	3.0	3.0	8	23	49	162	8
October	6.0	6.0	6.0	8	3.0	4.3	11.3	8	8	30	45	8
November	6.0	6.0	6.0	8	3.0	3.7	5.7	8	15	44	75	8
December	6.0	6.0	6.0	8	3.0	4.1	11.9	8	21	42	70	8
Annual	6.0	7.1	16.9	96	3.0	7.4	38.0	96	8	68	349	96
Location :Cochin Port Trust, Cochin												
January	6.0	6.9	10.8	6	14.7	29.5	48.7	6	115	143	177	4
February	6.0	6.0	6.0	6	9.0	32.6	58.5	6	168	203	254	4
March	6.0	6.0	6.0	6	19.8	28.3	36.8	6	116	177	212	4
April	6.0	10.3	14.8	6	11.2	19.1	31.0	6	53	184	379	4
May	6.0	6.0	6.0	6	3.0	15.8	40.3	6	36	64	124	4
June	6.0	6.0	6.0	6	12.5	20.1	32.2	6	29	42	67	4
July	6.0	6.0	6.0	6	3.3	11.6	15.7	6	54	64	71	4
August	6.0	6.4	7.3	6	10.3	15.9	22.8	6	12	48	98	4
September	6.0	9.0	16.7	6	3.2	11.5	18.2	6	59	68	80	4
October	6.0	15.1	32.2	6	11.2	15.2	19.2	6	40	61	82	4
November	6.0	13.0	27.8	6	3.0	17.6	28.8	6	137	185	240	4
December	6.0	6.5	7.7	6	5.7	12.6	22.0	6	162	228	276	4
Annual	6.0	8.1	32.2	72	3.0	19.1	58.5	72	12	122	379	48
Location :CSIR Complex, Cochin												
January	6.0	6.2	7.2	6	13.7	23.8	35.3	6	132	150	166	4
February	6.0	6.0	6.0	6	3.0	14.0	55.5	6	77	244	371	4
March	6.0	6.0	6.0	6	11.8	21.1	33.8	6	97	127	163	4
April	6.0	6.8	9.8	6	9.5	18.9	24.3	6	79	112	157	4
May	6.0	6.0	6.0	6	3.0	9.9	14.5	6	63	68	74	4
June	6.0	6.0	6.0	6	7.6	12.6	21.0	6	58	69	82	4
July	6.0	6.6	9.5	6	3.8	8.8	16.0	6	23	62	94	4
August	6.0	6.1	6.3	6	3.2	18.0	52.8	6	70	111	145	4
September	6.0	6.0	6.0	6	3.0	8.1	16.5	6	63	79	96	4
October	6.0	6.5	7.8	6	15.7	39.1	108.3	6	45	65	90	4
November	6.0	8.3	12.3	6	3.0	11.0	28.7	6	42	68	110	4

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.10.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
December	6.0	7.5	9.8	6	6.3	12.4	19.7	6	50	82	114	4
Annual	6.0	6.5	12.3	72	3.0	16.5	108.3	72	23	103	371	48
Location : Cochin Refineries Ltd. Guest Houst, Cochin												
January	6.0	6.0	6.0	6	9.5	25.7	51.0	6	44	63	102	4
February	6.0	6.0	6.0	6	9.0	15.4	22.0	6	53	94	153	4
March	6.0	6.0	6.0	6	14.3	21.0	31.0	6	53	79	107	4
April	6.0	10.4	17.7	6	10.3	19.8	30.7	6	49	78	129	4
May	6.0	6.6	9.5	6	3.0	8.5	16.7	6	32	34	36	4
June	6.0	6.0	6.0	6	14.0	18.9	25.3	6	13	42	83	4
July	6.0	8.8	17.7	6	5.0	12.9	26.2	6	46	59	69	4
August	6.0	6.8	9.7	5	9.5	13.5	17.7	5	52	58	72	4
September	6.0	8.4	16.3	6	5.8	15.8	33.0	6	34	70	113	4
October	6.0	11.3	18.3	6	5.5	9.3	15.3	6	34	51	82	4
November	6.0	16.4	50.2	6	3.0	8.0	15.0	6	35	77	135	4
December	6.0	8.0	15.2	6	8.7	14.1	24.2	6	81	116	155	4
Annual	6.0	8.4	50.2	71	3.0	15.3	51.0	71	13	68	155	48
Location :Travancore Sulphate Ltd., Thiruvananthapuram												
January	24.3	25.3	28.6	9	23.2	23.8	25.0	9	184	191	206	9
February	25.0	25.9	27.3	7	23.6	24.2	25.0	7	179	187	195	7
March	25.3	26.2	27.4	8	23.6	24.0	24.5	8	179	190	205	8
April	24.3	25.8	27.1	8	23.2	23.8	24.3	8	177	191	200	8
May	25.0	25.9	27.6	8	23.4	23.7	24.1	8	179	191	201	8
June	24.6	25.5	28.0	8	21.2	22.4	23.9	8	152	171	185	8
July	24.3	25.1	26.2	9	21.4	22.3	22.6	9	164	174	185	9
August	24.7	25.2	25.9	8	21.5	22.4	23.6	8	158	170	181	8
September	23.4	24.9	25.5	8	20.3	21.9	22.7	8	155	167	173	8
October	24.5	25.4	26.4	8	21.4	22.6	23.4	8	169	176	182	8
November	24.3	25.6	26.9	8	22.0	22.7	23.6	8	173	174	177	8
December	25.2	25.7	26.4	8	22.2	23.3	23.8	8	169	173	178	8
Annual	23.4	25.5	28.6	97	20.3	23.1	25.0	97	152	180	206	97
Location :SMV School, Thiruvananthapuram												
January	11.7	13.0	14.2	8	22.4	22.9	24.1	8	130	138	144	8
February	12.0	13.0	14.2	8	22.6	22.9	23.2	8	128	138	146	8
March	12.2	13.3	14.2	8	22.5	22.8	23.3	8	130	139	146	8

Note: N.A.-Data Not Available/Inadequate, Units in µg/m^3, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.10.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
April	12.0	13.3	14.0	8	22.0	22.6	23.1	8	133	138	145	8
May	12.2	13.3	13.8	8	22.4	22.7	23.3	8	131	139	145	8
June	12.6	13.1	13.9	8	19.6	21.5	22.2	8	116	125	135	8
July	11.7	13.3	14.2	8	21.3	21.7	22.0	8	121	129	138	8
August	12.4	13.1	13.9	8	21.0	21.9	22.6	8	115	125	134	8
September	12.2	12.9	14.0	8	20.7	21.6	22.2	8	115	120	129	8
October	12.2	12.9	14.0	8	21.3	22.2	22.9	8	120	125	133	8
November	11.3	12.5	13.5	8	21.9	22.5	23.4	8	114	157	407	8
December	11.3	12.4	13.4	9	22.0	22.9	23.8	9	115	122	128	9
Annual	11.3	13.0	14.2	97	19.6	22.4	24.1	97	114	133	407	97
Location : Pattor R.O., Thiruvananthapuram												
January	10.8	12.2	12.9	9	21.3	22.1	22.9	9	139	146	155	9
February	11.0	12.0	12.6	8	21.2	21.7	22.0	8	134	144	151	8
March	10.5	11.9	12.8	8	21.2	21.7	22.0	8	138	147	155	8
April	11.0	11.9	12.8	8	21.3	21.6	22.2	8	140	147	154	8
May	10.8	12.1	12.8	8	21.2	21.8	22.6	8	138	148	155	8
June	9.8	19.1	79.1	8	20.5	21.2	22.0	8	120	130	141	8
July	9.6	10.9	12.6	8	21.5	32.0	105.0	8	126	135	145	8
August	9.2	10.3	11.0	8	21.2	21.7	22.4	8	124	132	139	8
September	9.2	11.6	25.5	8	21.2	21.7	22.2	8	123	130	140	8
October	9.1	9.9	11.6	8	21.3	22.2	22.5	8	122	131	139	8
November	9.5	10.1	12.3	8	20.3	22.0	24.1	8	106	125	133	8
December	8.9	9.7	11.4	8	21.3	22.5	23.7	8	92	118	130	8
Annual	8.9	11.8	79.1	97	20.3	22.7	105.0	97	92	136	155	97
Location : Mavoor, Kozhikode												
January	6.0	6.0	6.0	9	17.4	18.5	19.1	9	81	85	86	9
February	6.2	6.4	6.6	7	20.3	21.0	21.9	7	103	104	106	7
March	6.0	6.2	7.3	10	3.5	7.6	15.6	10	29	61	133	10
April	6.0	6.5	7.1	8	7.2	12.0	21.4	8	79	96	119	8
May	6.0	6.7	7.5	8	14.6	18.7	21.3	8	93	111	130	8
June	6.0	6.4	8.6	8	3.0	6.1	10.3	8	74	95	114	7
July	6.0	7.6	10.6	8	5.3	10.8	15.5	8	62	86	106	8
August	6.0	6.3	7.0	8	3.3	4.9	9.7	8	49	80	102	8
September	6.0	6.2	7.4	8	3.0	4.5	6.2	8	34	49	80	8
October	6.0	6.0	6.0	8	4.4	5.9	7.6	8	27	55	81	8

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.10.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
November	6.0	7.0	12.8	8	3.0	4.3	6.7	8	44	58	78	8
December	6.0	6.0	6.0	8	3.0	3.5	4.2	8	48	61	75	8
Annual	6.0	6.4	12.8	98	3.0	9.7	21.9	98	27	78	133	97
Location : Palayam, Kozhikode												
January	6.0	6.0	6.0	8	10.5	10.8	11.1	8	55	58	60	8
February	6.0	6.0	6.0	7	12.0	12.3	12.7	7	79	80	81	7
March	6.0	6.0	6.0	8	10.5	11.9	13.2	8	84	104	116	8
April	6.0	6.1	6.5	7	9.2	10.5	12.7	7	64	100	122	7
June	6.0	6.2	7.3	8	3.1	8.0	13.5	8	41	76	95	7
July	6.0	6.5	9.7	8	3.0	5.8	9.4	8	42	75	101	8
August	6.0	6.1	6.4	8	3.0	3.6	5.1	8	49	70	83	8
September	6.0	6.5	8.4	7	3.0	4.2	5.0	7	46	59	70	7
October	6.0	6.5	7.6	8	3.4	6.0	8.2	8	54	64	80	8
November	6.0	6.2	7.1	8	3.0	4.4	8.9	8	51	64	75	8
December	6.0	6.1	6.4	8	3.5	4.3	5.5	8	48	62	72	8
Annual	6.0	6.2	9.7	85	3.0	7.4	13.5	85	41	74	122	84
Location : Kottayam												
January	6.0	6.0	6.0	8	3.2	8.5	22.3	8	33	42	59	8
February	6.0	6.0	6.0	7	11.0	15.3	21.5	7	40	57	121	7
March	6.0	6.0	6.0	7	11.5	18.0	22.4	7	20	59	106	7
April	6.0	6.0	6.0	7	9.6	18.1	24.8	7	15	34	75	7
May	6.0	6.0	6.0	8	18.9	30.0	41.7	8	55	88	153	8
June	6.0	6.0	6.0	8	11.2	14.8	19.4	8	36	57	107	8
July	6.0	6.0	6.0	8	6.3	20.2	29.2	8	5	23	45	8
August	6.0	6.0	6.0	12	15.3	22.5	29.9	12	15	53	110	12
September	6.0	6.0	6.0	12	12.9	18.1	29.3	12	15	27	61	12
October	6.0	6.0	6.0	12	9.9	18.9	27.9	12	9	30	44	12
November	6.0	6.5	12.2	12	17.3	21.2	24.0	12	20	36	56	12
December	6.0	6.0	6.0	12	18.6	20.4	23.4	12	25	38	52	12
Annual	6.0	6.1	12.2	113	3.2	19.1	41.7	113	5	44	153	113
Location : Chingavanam												
January	6.0	6.0	6.0	8	17.7	29.1	38.5	8	87	120	189	8
February	6.0	6.1	6.4	8	15.7	29.1	48.6	8	69	138	239	8

Note:N.A.-Data Not Available/Inadequate, Units in µg/m^3, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.10.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
March	6.0	6.0	6.0	7	34.2	39.6	49.5	7	84	131	194	7
April	6.0	6.0	6.0	8	35.5	39.3	44.7	8	56	78	92	8
May	6.0	6.0	6.0	7	34.2	38.5	41.2	7	64	105	144	7
June	6.0	6.0	6.0	8	24.3	38.2	50.8	8	64	101	194	8
July	6.0	6.0	6.0	8	8.5	24.2	34.9	8	49	87	122	8
August	6.0	6.0	6.0	12	14.8	25.8	38.2	12	87	117	145	12
September	6.0	6.0	6.0	11	13.8	25.8	35.1	11	60	93	126	11
October	6.0	7.5	23.8	12	21.3	28.7	36.1	12	49	87	254	12
November	6.0	6.0	6.0	12	14.4	18.2	25.2	12	35	49	90	12
December	6.0	6.0	6.0	12	14.7	23.0	27.0	12	34	65	113	12
Annual	6.0	6.2	23.8	113	8.5	28.8	50.8	113	34	95	254	113

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

3.11 MAHARASHTRA

3.11.1 AIR QUALITY MONITORING NETWORK :

CITY(IES)	Industrial	Residential	Sensitive	Total
Bombay	1	2	0	3
Nagpur	2	4	0	6
Chanderpur	1	2	0	3
Dombivali	1	1	0	2
Nasik	1	2	0	3
Pune	2	1	0	3
Solapur	0	2	0	2

3.11.2 AMBIENT AIR QUALITY STATUS

Annual Mean Concentration Range (µg/m3)						
	Industrial (I)	SO_2 & NO_2	SPM	Residential (R)	SO_2 & NO_2	SPM
Low	*L*	0-40	0-180	L	0-30	0-70
Moderate	*M*	40-80	180-360	M	30-60	70-140
High	*H*	80-120	360-540	H	60-90	140-210
Critical	*C*	>120	>540	C	>90	>210

		Annual Mean Concentration (µg/m3)		
City / Location	Area Class	SO_2	NO_2	SPM
CITY : Bombay				
Bandra	Residential	L	M	C
Kalbadevi	Residential	L	M	C
Parel	Industrial	L	L	M
CITY : Nagpur				
Hingma	Industrial	L	L	L
Maskasath	Residential	L	L	H
NEERI	Residential	L	L	M
IWWA	Residential	L	L	M
MIDC Office, Hingna Road	Industrial	L	L	L
Gram Panchayat, Kanhan	Residential	L	L	H

Contd...

Table 3.11.2 (Contd...)

		Annual Mean Concentration (µg/m3)		
City / Location	**Area Class**	**SO_2**	**NO_2**	**SPM**
CITY : Chanderpur				
Administrative Bldg.	Residential	L	L	M
Sub Regional Office, B.Nagar	Residential	M	M	M
M.I.D.C. Chnderpur	Industrial	L	M	L
CITY : Dombivali				
MIDC Phase II	Industrial	L	L	L
M/s Chemiquip Ltd.	Residential	L	L	M
CITY : Nasik				
RTO Colloney Tank	Residential	M	M	H
VIP Ind Area, MIDC Satpura	Industrial	L	L	L
Nasik Muni. Council Bldg.	Residential	M	M	C
CITY : Pune				
Pune Unversity	Residential	M	H	H
PCMC Chinchwad	Industrial	M	M	M
Poud Phata (Kothrud)	Industrial	M	M	H
CITY : Solapur				
WIT Campus	Residential	L	M	C
Chitalake Clinic	Residential	L	M	C

3.11.3 AIR QUALITY STATISTICS : The values of monthly and annual minimum, mean and maximum alongwith the number of monitored days for 16 or more hours of three monitored parameters viz. SO_2, NO_2, and SPM are presented in Table 3.11.1.

Table 3.11.1 AMBIENT AIR QUALITY STATISTICS - 1997

STATE : Maharashtra

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location : Hingna, Nagpur												
January	6.0	14.1	23.5	5	8.7	21.5	36.7	5	32	238	355	4
February	8.4	18.1	28.0	6	10.7	21.0	27.3	6	131	203	282	6
March	6.0	12.4	19.5	4	13.0	16.6	21.8	3	170	193	223	4
April	6.0	8.5	16.0	4	13.2	25.5	55.4	4	107	145	183	3
May	6.0	10.7	20.3	5	8.5	10.3	11.7	5	85	115	172	4
June	6.0	6.6	9.5	6	4.0	7.4	12.7	6	57	85	106	4
July	6.0	9.3	19.2	4	5.8	12.9	27.7	4	80	80	80	1
August	6.0	6.3	7.5	5	4.7	5.9	7.0	5	57	64	72	4
September	6.0	10.1	19.8	5	5.3	10.1	14.2	5	6	33	58	4
October	6.0	24.4	42.7	2	12.7	15.3	17.8	2	48	81	113	2
November	6.0	6.0	6.0	3	9.7	13.9	16.3	3	54	74	101	3
December	6.0	6.0	6.0	4	6.2	10.3	15.2	4	55	96	153	3
Annual	6.0	10.7	42.7	53	4.0	14.0	55.4	52	6	127	355	42
Location :Maskasath, Nagpur												
January	6.0	10.1	18.3	5	18.7	26.4	47.3	5	251	332	372	4
February	6.0	6.0	6.0	5	9.7	19.3	38.6	5	237	348	596	5
March	6.0	6.0	6.0	4	17.2	25.0	35.5	4	283	358	419	4
April	6.0	6.4	8.3	6	8.7	14.6	20.3	6	125	242	387	5
May	6.0	7.0	11.2	5	6.0	11.1	15.6	5	100	143	170	4
June	6.0	6.2	7.2	6	5.0	19.7	55.8	5	69	98	156	4
July	6.0	6.0	6.0	4	7.7	10.3	12.5	4	110	128	141	3
August	6.0	7.1	12.3	6	4.0	7.9	12.8	6	34	64	82	4
September	6.0	6.0	6.0	6	10.4	19.0	46.2	6	28	73	107	5
October	6.0	6.0	6.0	5	11.8	21.3	28.6	5	89	114	130	4
November	6.0	6.0	6.0	6	6.0	20.5	27.8	6	147	163	194	5
December	6.0	9.4	29.3	9	9.0	44.7	81.8	9	67	147	261	8
Annual	6.0	7.0	29.3	67	4.0	21.3	81.8	66	28	184	596	55
Location : NEERI, Nagpur												
January	6.0	6.0	6.0	6	12.2	17.0	22.3	6	162	197	221	5
February	6.0	8.5	13.6	3	10.5	19.7	25.0	3	177	207	267	3
March	6.0	6.3	7.3	4	7.2	13.1	16.3	4	126	166	184	4
April	6.0	7.9	10.5	4	4.8	12.3	18.7	4	114	163	189	3
May	6.0	7.4	13.0	5	4.0	7.4	11.3	5	80	94	120	4

Note:N.A.-Data Not Available/Inadequate, Units in µg/m³, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.11.1Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
June	6.0	6.4	7.8	5	3.3	22.2	48.5	5	49	70	119	4
July	6.0	6.0	6.0	4	3.8	4.6	5.3	4	31	57	96	3
August	6.0	6.0	6.0	5	3.0	5.6	8.5	5	14	34	51	4
September	6.0	6.0	6.0	5	4.8	9.5	14.0	5	33	67	172	5
October	6.0	6.0	6.0	4	4.0	11.3	20.2	4	55	69	80	3
November	6.0	6.9	10.7	8	7.7	18.0	34.8	8	54	78	117	5
December	6.0	6.4	8.2	5	5.3	13.4	25.7	5	19	50	86	5
Annual	6.0	6.6	13.6	58	3.0	13.1	48.5	58	14	102	267	48
Location :IWWA, Nagpur												
January	7.0	12.3	19.4	6	21.6	34.2	66.7	6	154	264	444	6
February	7.2	10.7	13.8	8	14.0	40.5	102.7	8	145	216	262	8
March	6.7	9.0	12.3	7	12.6	19.1	25.3	7	132	192	247	8
April	6.0	6.0	6.0	2	6.5	7.6	8.7	2	102	130	158	2
May	6.0	6.4	7.0	7	5.7	13.0	18.1	7	67	155	212	8
June	6.0	6.9	10.5	8	5.5	26.2	84.6	8	30	70	117	8
July	6.0	6.1	6.8	9	6.8	13.0	16.5	10	14	70	114	10
August	6.0	6.3	7.2	7	3.5	21.3	83.8	7	34	59	83	7
September	6.0	6.8	8.1	6	9.0	16.0	28.1	6	30	77	119	6
October	6.0	6.5	8.4	7	7.2	11.9	22.3	6	39	79	173	9
November	6.0	7.1	10.1	7	8.8	15.9	22.9	6	74	118	193	8
December	6.0	6.5	8.1	9	11.0	23.4	45.5	9	40	90	168	9
Annual	6.0	7.6	19.4	83	3.5	21.1	102.7	82	14	123	444	89
Location :MIDC Office, Hingna Road, Nagpur.												
January	9.8	12.6	14.9	8	15.9	17.7	20.9	8	147	166	209	8
February	9.4	12.4	16.4	5	15.2	36.3	80.2	6	83	183	253	8
March	6.2	13.1	23.3	7	9.1	20.2	34.0	7	136	198	259	7
April	6.0	6.5	7.5	3	11.2	13.6	15.1	3	56	104	129	4
May	6.1	6.9	7.8	6	11.9	13.2	14.2	6	58	111	175	8
June	6.0	8.4	13.2	8	5.0	13.1	17.9	8	36	83	164	8
July	6.0	9.9	22.4	7	5.7	28.6	150.8	7	29	66	93	8
August	6.0	6.6	8.1	7	3.1	7.5	19.4	7	41	128	182	8
September	6.0	10.2	18.4	6	5.9	19.5	46.2	6	53	92	136	6
October	6.7	8.4	10.9	4	10.2	41.2	76.5	5	96	159	229	6

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.11.1Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
November	6.0	15.3	24.2	5	44.2	90.2	148.1	4	69	122	196	6
December	6.0	9.1	26.0	7	9.8	22.0	66.4	7	66	113	194	8
Annual	6.0	10.0	26.0	73	3.1	24.5	150.8	74	29	127	259	85
Location :Gram Panchayat Bhavan, Kanhan, Nagpur												
January	7.9	14.1	27.2	9	12.8	20.8	36.0	9	277	418	503	9
February	8.3	12.2	24.1	8	16.1	32.1	67.3	8	198	362	491	8
March	7.5	11.1	18.5	6	9.2	21.7	28.2	6	250	337	540	6
April	6.3	7.8	9.3	2	11.8	15.8	19.7	2	249	294	338	2
May	6.0	13.4	62.5	8	4.3	10.8	17.8	8	143	234	397	9
June	6.0	7.7	11.8	7	5.0	8.9	15.3	8	56	139	300	8
July	6.1	9.1	12.6	7	4.1	8.8	18.8	7	12	58	146	7
August	6.0	7.5	11.3	6	3.7	6.7	9.8	6	20	69	174	10
September	6.0	6.1	6.2	4	3.3	5.6	9.3	4	36	55	87	4
October	6.2	8.4	14.1	5	6.6	11.1	17.1	5	33	171	275	6
November	6.0	7.2	11.8	7	10.2	18.6	26.8	7	29	133	275	8
December	6.0	6.8	8.9	8	7.8	20.5	45.1	7	79	157	300	8
Annual	6.0	9.7	62.5	77	3.3	15.8	67.3	77	12	202	540	85
Location :Bandra, Bombay												
January	10.5	34.1	71.3	6	16.8	30.5	49.2	6	230	299	328	4
February	15.8	33.3	46.0	5	15.7	25.3	36.8	5	292	384	437	3
March	6.3	15.3	22.5	6	15.3	24.9	38.3	6	208	287	381	4
April	6.0	36.6	136.3	5	5.6	16.9	29.8	5	164	249	309	3
May	6.0	9.7	19.0	6	4.3	23.7	46.4	6	190	330	408	4
June	6.0	6 5	7.5	6	4.5	41.8	145.3	6	196	548	1019	4
July	6.0	6.0	6.0	6	5.0	77.0	207.7	6	443	617	958	4
August	6.0	7.8	17.0	6	3.0	17.7	37.3	6	280	311	340	4
September	6.0	14.7	25.8	5	3.0	48.6	83.5	5	313	462	562	3
October	20.5	24.6	33.3	6	4.7	17.6	24.3	6	140	209	242	4
November	16.8	39 2	49.2	6	10.5	21.5	32.5	6	140	204	261	4
December	6.8	35.8	59.3	6	14.7	22.1	36.3	6	156	251	385	4
Annual	6.0	21.7	136.3	69	3.0	30.7	207.7	69	140	344	1019	45
Location :Kalbadevi, Bombay												
January	13.0	36.7	53.7	6	42.8	76.3	118.5	6	304	335	365	4

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.11.1Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
February	12.7	27.4	43.5	6	5.2	44.7	70.0	6	294	431	575	4
March	6.0	15.9	30.8	6	18.0	40.7	70.7	6	296	373	473	4
April	6.0	7.9	15.5	5	12.5	19.6	25.3	5	165	235	271	4
May	6.0	11.2	24.7	6	10.5	22.7	40.7	6	176	247	323	4
June	6.0	7.8	14.8	5	9.3	21.4	37.5	5	129	166	194	3
July	6.0	6.0	6.0	6	9.2	47.5	72.5	6	199	303	354	4
August	6.0	14.6	39.3	11	3.3	30.8	100.0	11	145	308	597	7
September	6.0	6.0	6.0	5	11.7	17.9	20.8	5	178	332	527	3
October	6.0	19.6	57.7	6	26.2	34.4	42.5	6	220	322	453	4
November	6.0	20.2	41.7	6	31.2	39.1	58.0	6	261	299	352	4
December	20.3	33.9	58.0	6	25.7	38.3	51.3	6	303	323	335	4
Annual	6.0	17.5	58.0	74	3.3	36.4	118.5	74	129	309	597	49
Location :Parel, Bombay												
January	15.0	28.2	47.2	5	25.4	59.6	86.5	5	255	281	313	3
February	22.5	57.1	117.3	5	30.8	61.2	99.2	5	341	401	478	3
March	17.2	31.3	49.0	6	27.2	36.8	52.7	6	251	307	355	4
April	6.0	51.7	154.2	5	13.3	27.3	48.3	5	201	246	309	3
May	8.3	19.1	30.5	6	15.8	21.7	26.2	6	48	188	270	4
June	6.0	13.2	37.8	6	18.3	30.0	50.0	6	144	182	246	4
July	6.0	25.6	71.7	6	3.0	48.9	197.2	6	135	211	301	4
August	10.0	14.9	23.3	6	3.3	8.2	21.3	6	145	185	235	4
September	6.8	15.8	37.2	6	13.8	36.6	127.5	6	127	212	369	4
October	12.2	42.9	76.3	6	9.5	30.6	42.0	6	175	268	361	4
November	49.5	57.3	67.7	6	31.2	40.4	67.3	6	111	189	233	4
December	26.0	79.4	114.0	6	16.3	36.1	47.3	6	234	268	344	4
Annual	6.0	36.0	154.2	69	3.0	35.9	197.2	69	48	240	478	45
Location :Administrative Building, Chandrapur												
January	17.8	20.6	24.5	9	25.2	28.0	31.3	9	62	81	111	9
February	16.3	19.1	21.0	8	28.0	29.4	30.8	8	93	105	118	8
March	16.3	19.3	21.8	8	25.8	28.9	32.0	8	155	198	266	8
April	16.3	19.3	21.8	8	28.0	29.8	34.8	8	124	139	156	8
May	15.0	17.0	18.3	8	26.2	28.2	31.8	8	155	164	179	8
June	15.0	17.6	20.2	8	26.7	28.9	31.0	8	120	126	139	8
July	15.2	17.2	20.2	9	26.2	28.5	30.5	9	124	133	143	9
August	16.3	18.3	20.2	2	28.8	29.6	30.3	2	119	124	129	2

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.11.1Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
December	16.3	21.3	32.5	8	23.5	29.7	55.3	8	52	59	63	8
Annual	15.0	18.9	32.5	68	23.5	28.9	55.3	68	52	125	266	68

Location :Sub-Regional Office, Bapat Nagar, Chandrapur

January	35.5	41.4	44.7	8	44.5	56.4	63.7	8	55	67	98	8
February	32.5	36.1	40.2	7	55.7	58.5	61.3	7	70	96	109	7
March	32.5	36.1	40.2	9	53.2	56.5	59.7	9	131	171	284	9
April	29.0	36.1	42.5	8	39.3	56.0	64.7	8	91	120	134	8
May	27.8	32.5	36.8	8	52.0	55.9	57.8	8	95	117	140	8
June	25.2	31.1	34.3	8	50.7	55.1	61.0	8	106	117	126	8
July	25.3	30.4	33.8	9	51.3	56.6	59.7	9	85	120	137	9
August	29.0	33.8	36.3	13	47.2	54.9	63.0	13	117	124	129	13
September	21.7	30.6	36.8	13	51.2	58.0	61.8	13	108	122	132	13
October	21.7	34.7	44.0	13	51.3	56.5	62.7	13	96	120	135	13
November	21.7	27.6	32.5	13	46.3	51.8	56.3	13	120	127	137	13
December	25.2	33.7	38.8	9	43.7	48.2	59.7	9	52	59	71	9
Annual	21.7	33.3	44.7	118	39.3	55.3	64.7	118	52	115	284	118

Location :M.I.D.C. Chandrapur.

January	29.8	38.5	46.5	10	48.2	55.3	63.5	10	40	65	81	10
February	32.5	36.2	40.8	9	54.8	58.1	60.8	9	59	76	89	9
March	29.0	37.0	42.5	9	54.0	57.2	64.7	9	117	172	235	9
April	32.0	36.5	40.2	10	42.0	55.3	59.8	10	102	123	162	10
May	29.0	40.0	63.2	9	36.5	49.8	60.2	9	121	128	140	9
June	25.2	32.0	36.8	9	48.0	56.3	61.5	9	120	125	136	9
July	27.0	32.6	38.3	9	48.8	55.5	60.8	9	116	122	128	9
August	25.2	33.6	40.2	11	51.2	56.5	60.5	11	110	122	130	11
September	25.2	34.8	38.3	13	47.8	54.5	59.7	13	114	123	130	13
October	22.0	29 0	36.0	14	44.8	50.5	56.5	14	99	120	136	14
November	20.8	29.5	36.8	12	46.3	53.1	58.7	12	118	125	134	12
December	29.0	34.5	39.2	10	45.7	48.8	53.5	10	53	67	77	10
Annual	20.8	34.2	63.2	125	36.5	54.1	64.7	125	40	114	235	125

Location : RTO Colony Tank, Nasik

January	23.8	52.4	66.2	8	7.5	34.6	53.2	8	60	161	215	9

Note:N.A.-Data Not Available/Inadequate, Units in μg/m³, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.11.1Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
February	28.0	39.3	48.3	7	17.3	21.8	26.8	7	94	199	276	8
March	21.7	30.6	39.0	8	25.2	30.4	37.7	8	138	205	255	8
April	18.7	40.3	73.0	8	18.5	29.5	36.7	8	118	151	196	9
May	26.5	40.6	58.3	9	23.5	42.6	52.7	9	58	145	226	9
June	26.7	32.6	43.3	8	18.3	32.0	43.8	8	43	71	108	8
July	36.5	48.7	106.3	8	22.7	35.5	49.0	8	78	117	171	9
August	29.0	40.0	48.8	8	29.3	37.5	45.5	8	67	111	180	8
September	32.2	41.3	49.0	8	28.7	43.5	62.7	8	51	116	208	9
October	25.0	38.4	55.8	8	26.7	41.0	57.3	8	82	138	180	8
November	28.7	42.2	54.0	8	22.3	38.3	55.2	8	84	160	234	8
December	21.2	45.2	63.3	9	31.2	44.5	56.8	9	140	217	282	9
Annual	18.7	41.0	106.3	97	7.5	36.2	62.7	97	43	149	282	102
Location :VIP Industrial Area, MIDC Satpura, Nasik												
January	31.2	48.7	59.0	9	13.0	19.9	31.3	9	93	135	182	9
February	26.3	39.3	51.5	8	12.3	19.0	25.8	8	170	244	330	8
March	22.8	35.7	42.2	9	19.5	33.1	40.8	9	159	232	287	9
April	37.7	45.6	59.3	8	37.2	43.9	54.0	8	205	251	304	8
May	18.5	29.4	42.0	7	15.7	23.8	40.3	7	121	149	189	7
June	16.3	29.7	40.7	9	10.3	15.8	23.8	9	38	100	145	9
July	20.3	27.0	33.5	8	13.7	19.4	28.0	8	58	130	224	8
August	20.3	29.4	45.0	8	19.8	28.9	38.2	8	98	147	203	8
September	27.3	38.9	50.0	9	29.8	39.1	52.2	9	107	144	229	9
October	24.2	37.2	52.2	8	30.5	39.2	45.5	8	101	179	240	8
November	23.5	37.9	52.3	8	21.3	37.5	50.2	8	115	149	253	8
December	30.2	38.5	45.5	9	27.8	40.1	52.2	9	166	209	245	9
Annual	16.3	36.6	59.3	100	10.3	30.0	54.0	100	38	172	330	100
Location :Nasik Municipal Council Bldg. Nasik												
January	45.3	54.5	63.2	9	8.8	24.6	45.0	9	187	243	313	9
February	18.3	29.7	37.3	8	12.7	26.0	34.0	8	165	283	356	8
March	24.5	30.3	37.2	9	19.5	28.8	35.7	9	222	277	379	9
April	20.8	37.7	56.5	9	14.2	25.4	42.7	9	119	213	250	9
May	26.7	33.7	41.0	9	18.2	26.5	34.7	9	45	80	173	9
June	16.3	35.0	46.3	8	18.2	24.8	30.2	8	77	137	208	8
July	26.5	32.4	42.2	8	17.8	25.0	33.0	8	46	205	275	9
August	20.8	35.5	51.0	9	17.2	23.6	31.8	9	105	188	296	9

Note:N.A.-Data Not Available/Inadequate, Units in µg/m³, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.11.1Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
September	26.8	36.2	55.5	8	24.0	40.6	53.8	8	136	168	216	8
October	21.0	40.4	62.3	9	47.0	55.9	67.5	9	189	245	330	9
November	30.3	46.4	62.0	9	28.3	41.1	50.8	9	146	245	362	9
December	24.2	44.2	55.3	9	20.8	39.3	49.8	9	145	255	296	9
Annual	16.3	38.2	63.2	104	8.8	31.9	67.5	104	45	212	379	105
Location :Dombivali MIDC Phase-II												
January	12.5	23.0	47.0	7	13.5	17.4	28.0	7	51	169	400	12
February	12.3	19.4	28.0	9	10.8	26.1	33.8	9	94	156	283	11
March	15.8	37.6	77.8	12	18.3	26.0	52.3	12	52	143	182	13
April	21.0	31.9	44.8	13	17.3	21.9	35.2	13	86	136	168	13
May	21.2	29.7	43.0	11	24.4	29.7	37.0	11	80	136	174	13
June	10.5	24.6	50.0	11	14.5	24.4	51.3	10	28	60	126	13
July	12.0	15.4	21.5	10	14.8	29.9	44.8	10	39	111	257	13
August	9.8	15.3	24.0	7	9.0	26.6	65.0	7	28	113	376	10
September	8.5	17.5	44.2	12	10.7	37.8	69.7	12	34	61	96	13
October	12.0	28.2	69.3	12	14.2	24.8	74.0	12	38	81	129	12
November	15.0	23.5	42.8	8	16.3	24.7	39.0	8	71	173	326	12
December	6.3	31.3	85.5	13	14.7	28.8	41.5	13	84	309	766	14
Annual	6.3	25.6	85.5	125	9.0	26.9	74.0	124	28	139	766	149
Location :M/s Chemiequip Ltd, Ambarnath												
January	11.3	29.3	72.6	11	10.3	13.0	19.3	11	62	125	228	14
February	11.5	24.7	57.5	10	10.5	20.6	37.7	10	98	201	409	12
March	21.3	40.5	67.7	12	17.3	25.6	31.7	12	80	134	186	13
April	19.4	33.6	57.2	13	17.3	23.1	33.6	13	127	144	164	13
May	22.5	27.7	40.7	14	22.7	26.1	30.8	14	85	146	190	14
June	12.7	18.5	27.7	12	14.7	23.6	49.3	12	45	92	157	12
July	12.0	14.4	18.5	14	12.8	26.8	43.2	14	51	93	173	14
August	8.5	13.5	20.5	11	12.8	21.0	33.2	11	32	58	100	12
September	9.2	17.8	26.8	13	7.0	16.2	35.7	13	28	72	129	13
October	8.4	18.9	43.5	12	10.0	17.4	30.8	11	55	119	204	12
November	11.3	17.4	28.3	10	8.5	14.1	22.3	10	50	164	418	13
December	13.2	24.2	40.0	13	11.7	23.5	43.4	13	243	316	463	13
Annual	8.4	23.4	72.6	145	7.0	21.2	49.3	144	28	139	463	155

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.11.1Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location :University Gate, Pune												
September	47.7	50.3	51.7	7	54.3	61.2	66.8	7	120	239	281	8
October	48.0	51.9	54.8	5	57.3	61.5	65.5	5	122	183	238	8
November	44.8	49.7	52.5	4	53.8	61.1	66.2	4	93	170	230	7
December	45.0	49.4	52.3	7	55.8	58.5	62.0	7	96	221	264	8
Annual	44.8	50.3	54.8	23	53.8	60.4	66.8	23	93	204	281	31
Location :PCMC, Chinchwad, Pune												
September	51.7	55.1	58.8	8	56.2	61.9	66.8	8	268	286	305	8
October	48.2	56.8	62.8	8	56.5	62.0	67.3	8	165	254	339	8
November	47.5	56.4	65.6	5	56.3	61.2	68.2	5	148	206	264	7
December	46.3	53.9	61.4	7	58.2	62.0	65.7	7	233	265	297	7
Annual	46.3	55.5	65.6	28	56.2	61.8	68.2	28	148	254	339	30
Location :Poud Phata (Kothrud), Pune												
September	57.0	61.1	67.7	8	64.0	69.7	76.2	8	463	498	579	8
October	43.4	55.3	65.0	8	53.5	58.7	63.3	8	297	402	487	8
November	48.2	55.4	66.5	5	56.5	65.1	74.0	5	245	382	502	6
December	46.5	52.7	61.0	7	55.0	64.2	73.0	7	252	479	617	8
Annual	43.4	56.3	67.7	28	53.5	64.3	76.2	28	245	444	617	30
Location :WIT Campus, Solapur												
January	16.7	22.7	27.0	10	34.3	41.4	49.0	10	176	251	299	10
February	20.0	22.4	23.7	6	32.7	44.9	62.0	6	121	301	554	8
March	11.2	20.3	26.8	8	37.8	52.7	62.3	8	102	213	311	8
April	16.3	20.1	25.2	6	37.8	47.7	52.2	6	101	216	334	9
May	17.0	20.9	25.2	9	35.8	40.9	48.5	9	191	226	280	9
June	15.0	20.5	26.0	8	30.7	47.4	56.8	8	109	152	209	8
July	15.8	20.4	26.5	9	42.3	46.8	52.5	9	93	174	264	10
August	10.3	15.6	23.7	7	27.5	40.3	57.0	7	86	176	222	8
September	15.0	17.0	18.5	7	38.2	43.1	50.0	7	82	172	204	8
October	12.8	17.1	19.3	9	31.3	44.2	55.2	9	127	214	268	9
November	14.0	17.9	22.4	8	37.2	42.5	46.4	8	138	201	303	8
December	14.7	17.4	20.0	9	40.3	45.7	53.3	9	149	239	308	9
Annual	10.3	19.4	27.0	96	27.5	44.7	62.3	96	82	212	554	104
Location :Chitale Clinic, Solapur												
January	18.5	21.1	24.0	8	50.7	56.8	63.5	8	90	262	379	9

Note:N.A -Data Not Available/Inadequate, Units in µg/m^3, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.11.1Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
February	15.2	18.4	23.7	6	47.2	50.9	57.0	6	133	292	387	7
March	15.2	21.1	27.5	8	42.2	53.8	60.2	8	102	246	423	9
April	16.0	20.8	30.0	7	42.8	51.6	61.2	7	147	241	366	8
May	19.2	22.0	24.8	8	40.5	47.3	51.8	8	172	247	338	10
June	15.7	19.2	26.8	8	36.7	43.6	53.5	8	69	153	212	8
July	20.5	22.4	23.8	7	43.2	48.6	53.2	7	37	184	256	8
August	10.0	17.8	25.3	10	31.0	45.1	65.7	10	172	205	240	10
September	15.8	17.7	20.8	7	43.3	47.9	51.8	7	154	207	250	7
October	14.0	17.4	20.2	8	41.0	44.6	50.2	8	180	276	379	8
November	15.3	17.2	20.7	8	41.0	45.8	51.7	8	212	256	337	8
December	17.7	19.9	22.0	8	43.0	47.0	50.3	8	194	252	311	8
Annual	10.0	19.5	30.0	93	31.0	48.4	65.7	93	37	235	423	100

Note:N.A.-Data Not Available/Inadequate, Units in µg/m³, N-Number of observation with >=16 hours monitoring days

3.12 MADHYA PRADESH

3.12.1 AIR QUALITY MONITORING NETWORK :

CITY(IES)	Industrial	Residential	Sensitive	Total
Bhilai	1	2	0	3
Bhopal	1	2	0	3
Indore	1	2	0	3
Jabalpur	0	1	0	1
Korba	0	2	0	2
Nagda	1	2	0	3
Raipur	1	1	0	2
Satna	1	1	0	2

3.12.2 AMBIENT AIR QUALITY STATUS

Annual Mean Concentration Range (µg/m3)						
	Industrial (I)	SO_2 & NO_2	SPM	Residential (R)	SO_2 & NO_2	SPM
Low	*L*	0-40	0-180	L	0-30	0-70
Moderate	*M*	40-80	180-360	M	30-60	70-140
High	*H*	80-120	360-540	H	60-90	140-210
Critical	*C*	>120	>540	C	>90	>210

		Annual Mean Concentration (µg/m3)		
City / Location	**Area Class**	**SO_2**	**NO_2**	**SPM**
CITY : **Bhilai**				
Visak Hostel, Sec.-4	Residential	M	M	H
5/32 Bunglow Office	Residential	-	M	H
Laghu Udhyog Nigam	Industrial	L	L	M
CITY : **Bhopal**				
Hamida Road	Residential	L	M	C
Govindpura	Industrial	L	L	M
South T.T. Nagar	Residential	L	L	M

Contd...

Table 3.12.2 (Contd...)

City / Location	Area Class	Annual Mean Concentration (µg/m3) SO$_2$	NO$_2$	SPM
CITY : Indore				
Association of I. Pologround	Industrial	L	L	M
Kothari Market	Residential	L	L	C
Telephone Nagar	Residential	L	L	H
CITY : Jabalpur				
Vijay Nagar	Residential	L	L	M
CITY : Korba				
Gitanjali Bhawan	Residential	L	L	H
NTPC Colony, Pragati Ngr.	Residential	L	L	M
CITY : Nagda				
Chem. Div. Labour Club	Industrial	H	L	L
B C I Labour Club	Residential	M	H	H
Grasim Kalyan Kendra	Residential	H	L	M
CITY : Raipur				
MPEB Sub Stn., Birgaon	Industrial	L	L	M
M/S Wool Worth I.Pvt. Ltd.	Residential	L	L	H
CITY : Satna				
HIG-37, Bharhut Nagar	Residential	L	L	H
Industrial Area	Industrial	L	L	M

3.12.3 AIR QUALITY STATISTICS : The values of monthly and annual minimum, mean and maximum alongwith the number of monitored days for 16 or more hours of three monitored parameters viz. SO_2, NO_2, and SPM are presented in Table 3.12.1.

Table 3.12.1 AMBIENT AIR QUALITY STATISTICS - 1997
STATE : Madhya Pradesh

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location : Visak Hostel, Sector-4, Bhilai												
January	32.7	35.6	40.5	9	37.3	40.6	47.0	9	142	232	411	9
February	32.5	39.2	44.5	8	39.0	46.2	49.7	8	128	230	316	8
March	31.8	33.3	34.8	6	38.0	39.8	43.2	6	116	235	341	7
April	25.0	30.2	34.8	9	30.8	34.6	40.4	9	92	152	200	9
May	27.7	31.1	34.5	9	33.3	35.4	38.5	9	84	148	277	9
June	27.0	30.6	34.0	8	32.8	34.9	38.0	8	52	100	196	8
July	29.7	31.2	32.3	5	34.0	35.2	36.5	5	44	74	96	7
August	22.8	23.5	24.8	5	26.0	27.9	30.2	5	58	69	83	5
September	21.5	26.1	29.8	9	27.8	30.7	34.5	9	40	88	146	9
October	27.8	29.5	31.5	8	30.0	34.0	36.0	8	71	180	349	9
November	26.7	29.3	31.8	8	30.5	33.6	37.3	8	145	232	327	8
December	26.7	31.9	40.2	8	32.2	36.3	44.0	8	73	170	257	9
Annual	21.5	31.1	44.5	92	26.0	35.9	49.7	92	40	162	411	97
Location : R.O., 5/32 Bangllow Office Building, Bhilai												
January	N.A.	N.A.	N.A.	0	N.A.	37.2	40.8	9	86	147	232	9
February	N.A.	N.A.	N.A.	0	N.A.	39.1	41.8	8	141	163	197	8
March	N.A.	N.A.	N.A.	0	N.A.	35.4	43.7	9	113	152	216	9
April	N.A.	N.A.	N.A.	0	N.A.	32.5	34.2	8	83	110	147	8
May	N.A.	N.A.	N.A.	0	N.A.	30.1	35.2	9	60	122	208	9
June	N.A.	N.A.	N.A.	0	N.A.	32.3	34.3	9	53	77	127	9
July	N.A.	N.A.	N.A.	0	N.A.	28.8	30.7	7	46	72	105	7
August	N.A.	N.A.	N.A.	0	N.A.	27.1	28.7	5	32	64	84	7
September	N.A.	N.A.	N.A.	0	N.A.	31.2	35.3	8	51	72	116	9
October	N.A.	N.A.	N.A.	0	N.A.	31.0	34.0	7	70	107	131	7
November	N.A.	N.A.	N.A.	0	N.A.	30.3	33.3	8	93	132	163	8
December	N.A.	N.A.	N.A.	0	N.A.	31.3	34.7	8	56	131	251	8
Annual	N.A.	N.A.	N.A.	0	N.A.	32.5	43.7	95	32	114	251	98
Location : Laghu Udyog Nigam, Bhilai												
January	32.5	37.4	44.7	9	37.8	42.4	50.0	9	142	308	554	9
February	36.3	42.0	49.8	8	42.8	48.2	55.3	8	236	317	417	8
March	31.2	37.3	42.7	9	34.2	43.1	51.3	9	219	320	458	9
April	28.2	30.1	32.5	9	31.2	33.9	35.8	9	168	240	318	9

Note: N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.12.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
May	30.8	32.2	35.5	9	34.7	36.4	39.0	9	196	242	311	9
June	31.3	32.7	35.0	7	33.8	35.6	37.3	7	95	151	279	8
July	29.3	31.8	33.8	6	33.5	35.1	36.5	6	39	95	168	8
August	22.6	26.5	30.3	8	27.8	31.5	35.0	8	46	120	315	9
September	28.5	31.0	33.0	6	32.3	34.1	36.0	6	59	123	191	8
October	30.3	31.5	32.8	8	33.0	35.6	37.7	8	145	235	323	8
November	25.0	30.2	33.3	8	31.3	34.2	38.5	8	182	287	411	9
December	29.0	33.1	38.3	5	32.2	36.1	41.7	5	105	215	393	7
Annual	22.6	33.1	49.8	92	27.8	37.4	55.3	92	39	223	554	101
Location :Chemical Division Labour Club, Nagda												
January	57.6	90.0	120.8	7	18.4	39.0	80.8	7	57	99	119	8
February	41.2	85.3	113.3	6	21.2	28.4	38.8	6	69	126	220	8
March	28.2	72.8	105.2	8	14.7	22.9	42.7	8	87	130	202	8
April	53.8	74.7	99.0	7	16.5	23.6	30.5	7	58	109	145	7
May	60.0	81.6	105.2	9	20.8	23.1	29.9	9	77	116	182	9
June	55.4	80.3	103.4	8	17.8	22.9	26.4	8	80	126	191	8
July	73.5	75.2	77.9	3	19.1	24.7	28.1	3	45	91	140	6
August	56.9	65.8	72.7	4	17.2	21.4	26.0	4	62	94	185	6
September	66.3	91.2	113.8	8	22.5	29.0	45.1	8	63	92	145	9
October	74.2	92.4	112.4	7	19.6	26.2	39.3	7	81	110	139	7
November	40.7	74.7	94.9	8	15.5	22.3	29.3	8	75	93	125	8
December	54.5	88.9	118.8	7	21.0	32.6	45.3	7	87	110	134	7
Annual	28.2	81.8	120.8	82	14.7	26.4	80.8	82	45	109	220	91
Location :Grasim Kalyan Kendra, Nagda												
January	57.4	80.6	121.8	9	16.7	27.8	53.5	9	100	148	189	9
February	58.1	90.4	119 4	8	20.9	30.4	74.1	8	122	164	209	8
March	45.0	71.0	101.2	9	19.7	25.8	41.9	9	143	173	219	9
April	32.6	62.1	88.9	7	17.2	23.4	32.2	7	97	140	207	8
May	55.3	76.7	94.3	9	18.5	21.8	24.7	9	88	140	187	9
June	53 7	73.0	112.4	5	20.9	23.6	24.9	5	76	135	211	7
July	17.7	63.0	108.9	5	17.0	22.5	27.7	5	58	101	126	6
August	43.6	57.5	85.5	4	16.8	19.8	22.1	4	40	66	121	6
September	71.6	85.6	104.1	8	19.1	24.7	32.5	8	83	92	98	8

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.12.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
October	45.4	78.0	109.1	7	20.3	26.6	42.9	7	94	127	180	7
November	35.8	63.0	111.2	7	18.3	26.0	32.6	7	60	98	121	8
December	73.4	96.7	127.8	9	22.8	39.8	57.2	9	79	116	130	9
Annual	17.7	76.6	127.8	87	16.7	26.7	74.1	87	40	127	219	94
Location :B C I Labour Club, Nagda												
January	29.1	50.3	112.5	9	52.9	77.5	114.4	9	118	245	309	9
February	35.1	51.5	102.4	8	40.0	61.0	79.9	8	193	245	306	8
March	25.1	35.6	48.3	9	43.8	55.5	66.2	9	141	241	340	9
April	20.0	31.2	44.3	8	29.5	51.2	79.4	8	56	156	291	9
May	29.7	39.4	54.4	9	49.1	62.5	86.9	9	102	155	186	9
June	27.9	40.0	75.5	6	26.2	49.8	69.0	6	73	120	150	7
July	29.0	32.0	38.2	4	45.1	53.4	62.3	4	90	115	157	4
August	28.0	34.4	42.5	3	39.9	47.7	59.1	3	70	94	126	3
September	27.8	40.6	54.2	6	45.6	63.7	79.4	6	45	72	106	8
October	30.3	36.1	41.7	8	48.0	58.5	70.5	8	102	114	134	8
November	25.4	34.5	45.3	9	43.0	61.7	79.4	9	110	141	173	9
December	34.6	43.7	52.5	8	42.3	63.5	82.2	8	47	118	149	9
Annual	20.0	39.7	112.5	87	26.2	60.1	114.4	87	45	158	340	92
Location :Hamidia Road, Bhopal												
January	19.6	22.8	26.2	8	28.1	30.8	34.2	8	269	336	375	8
February	16.2	18.2	19.6	8	28.6	32.4	34.7	8	301	339	364	8
March	18.0	20.2	21.9	8	26.9	30.2	33.7	8	299	330	371	8
April	18.8	20.2	22.6	9	32.2	34.9	37.7	9	262	341	370	9
May	16.8	19.4	20.8	8	29.0	32.1	34.6	8	323	349	378	8
June	18.3	19.9	21.4	8	28.0	31.6	34.3	8	314	351	374	8
July	17.1	18.7	20.0	9	29.3	31.9	34.8	9	321	345	378	10
August	19.5	21.6	24.2	6	33.5	35.8	41.8	6	265	339	363	7
September	19.8	21.4	22.6	9	32.7	35.4	41.9	9	127	295	370	9
October	16.6	18.5	20.6	7	27.4	31.0	33.9	7	317	342	380	7
November	14.2	16.2	19.1	8	23.3	27.4	32.2	8	307	347	390	8
December	15.6	19.4	22.6	6	29.6	33.4	38.7	6	179	307	399	7
Annual	14.2	19.7	26.2	94	23.3	32.2	41.9	94	127	335	399	97

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.12.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location :South T.T. Nagar, Bhopal												
January	9.0	11.2	13.0	10	12.4	15.6	18.7	10	122	138	149	10
February	8.9	9.7	11.0	7	12.2	16.2	18.4	7	128	133	142	7
March	8.9	11.3	12.6	6	13.7	16.4	19.8	6	122	130	133	6
April	10.0	12.8	15.8	7	15.4	17.5	19.5	7	98	122	138	7
May	10.4	12.5	13.9	9	13.6	18.1	20.5	9	129	138	147	9
June	12.2	13.3	15.5	8	15.8	17.6	19.5	8	104	128	145	8
July	11.6	12.1	12.7	5	15.7	17.2	19.4	5	127	137	147	5
August	10.7	12.4	13.5	7	16.0	18.9	20.6	7	119	133	143	7
September	11.5	12.7	13.6	6	19.8	20.9	22.9	6	109	122	132	7
October	10.3	11.6	13.6	10	15.0	17.0	20.2	10	116	133	148	10
November	9.2	11.5	12.5	7	14.9	17.0	18.9	7	119	132	146	7
December	9.9	13.2	15.7	5	14.5	19.5	23.1	5	105	131	164	6
Annual	8.9	12.0	15.8	87	12.2	17.5	23.1	87	98	132	164	89
Location :Govindpura, Bhopal												
January	16.6	19.0	21.8	8	24.0	27.3	30.8	8	252	293	338	8
February	15.2	16.1	17.4	8	28.2	29.5	31.6	8	238	279	337	8
March	15.6	17.4	20.9	9	21.4	26.1	30.1	9	256	284	345	9
April	15.8	17.1	20.1	7	31.1	33.8	38.8	7	261	307	353	7
May	16.9	18.3	20.0	9	25.9	29.7	32.8	9	270	325	355	9
June	15.4	17.4	20.0	9	23.5	28.1	32.0	9	319	354	381	9
July	15.4	17.4	18.7	6	27.3	32.2	35.9	6	265	320	378	7
August	15.0	16.6	18.9	5	26.6	28.5	30.9	5	298	324	352	6
September	15.5	17.8	19.1	9	28.6	29.9	32.5	9	215	306	348	9
October	15.3	17.0	18.2	7	26.0	27.7	29.0	7	212	264	312	7
November	14.3	15.3	17.0	7	23.9	25.9	27.8	7	214	266	326	8
December	14.0	17.1	19.8	7	25.1	28.7	33.1	7	173	273	383	9
Annual	14.0	17.3	21.8	91	21.4	28.9	38.8	91	173	300	383	96
Location :Telephone Nagar, Indore												
January	6.0	6.9	8.4	5	6.0	9.8	13.4	7	141	227	311	8
February	6.0	7.1	8.0	4	6.3	8.3	10.0	6	139	216	329	8
March	6.0	7.0	8.4	5	7.0	9.1	10.0	7	163	235	406	8
April	6.0	6.2	7.0	7	6.0	7.8	9.3	7	147	285	475	7
May	6.0	6.3	7.0	7	6.8	9.5	13.3	8	172	258	525	10

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.12.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
June	6.0	6.5	7.8	4	4.8	8.5	12.8	6	104	237	391	8
July	6.0	7.4	8.4	4	4.4	8.7	11.0	5	44	110	155	9
August	6.0	7.4	10.8	5	8.3	9.2	12.5	6	62	102	154	8
September	6.7	6.9	7.0	6	5.0	8.7	12.6	6	73	97	129	7
October	6.0	7.0	8.5	5	5.2	8.3	11.3	5	127	160	215	6
November	6.0	6.3	7.3	7	5.3	8.9	12.6	8	105	192	352	9
December	6.0	7.7	10.7	7	8.0	11.6	15.5	7	107	198	265	7
Annual	6.0	6.9	10.8	66	4.4	9.1	15.5	78	44	194	525	95
Location :Association of Industries, Pologround, Indore												
January	6.0	6.4	7.0	6	6.0	8.2	10.8	8	113	288	488	9
February	6.5	6.8	7.0	3	9.0	9.9	10.8	3	110	314	658	8
March	6.0	7.1	8.6	5	6.0	9.5	11.6	6	194	238	270	8
April	7.0	8.1	9.4	6	8.4	10.8	13.4	6	134	210	324	8
May	6.4	7.0	8.0	7	7.2	10.7	14.2	7	156	265	494	8
June	6.4	6.6	7.0	3	4.8	5.9	8.3	4	69	246	414	8
July	6.0	6.7	7.0	3	8.3	10.0	13.0	4	49	146	205	7
August	6.0	6.9	7.8	5	10.5	12.7	18.0	4	84	118	152	6
September	6.0	7.9	10.5	9	7.3	10.9	12.6	9	111	140	181	9
October	6.4	7.7	10.0	7	5.8	10.5	14.7	7	34	285	474	8
November	6.0	7.3	9.3	8	5.8	9.7	13.8	8	158	236	380	8
December	6.0	8.0	9.5	8	5.8	12.3	18.0	8	172	270	385	8
Annual	6.0	7.3	10.5	70	4.8	10.2	18.0	74	34	232	658	95
Location :Kothari Market, Indore												
January	6.0	6.3	7.0	5	8.3	9.7	11.3	6	136	261	387	9
February	6.5	7.8	8.4	4	8.0	9.4	11.0	5	85	242	486	8
March	6.0	6.8	7.6	2	8.0	8.9	10.2	4	53	228	368	7
April	6.7	7.4	8.3	7	8.7	9.8	11.2	7	140	227	313	8
May	6.4	7.4	8.3	4	8.0	11.0	12.7	5	111	251	349	8
June	6.0	6.9	7.8	6	5.2	7.9	11.8	7	77	228	358	9
July	6.3	7.5	9.0	5	7.8	10.0	13.5	5	80	142	210	9
August	7.3	7.7	8.2	4	10.0	12.2	14.0	5	73	149	213	6
September	7.6	8.3	9.0	6	10.0	12.2	14.7	7	109	142	213	8
October	6.0	7.8	11.0	9	8.0	11.1	17.3	9	105	237	709	9

Note:N.A.-Data Not Available/Inadequate, Units in µg/m³, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.12.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
November	6.0	7.4	9.1	8	10.8	12.3	15.8	8	198	233	264	8
December	6.0	7.6	9.8	10	10.5	12.6	15.7	10	143	217	311	10
Annual	6.0	7.5	11.0	70	5.2	10.8	17.3	78	53	214	709	99
Location :HIG-37 Bharhut Nagar, Satna												
January	11.9	13.3	14.4	9	12.9	15.5	16.5	9	91	153	323	9
February	10.8	12.4	13.9	8	11.4	13.1	14.2	8	121	137	166	8
March	10.2	12.2	13.6	9	9.3	11.9	14.7	9	115	159	303	9
April	8.0	8.5	10.4	8	11.1	12.5	13.9	8	74	166	196	8
May	8.7	10.2	11.1	9	10.4	11.7	13.4	9	135	162	208	9
June	9.8	12.5	15.5	8	7.8	11.4	14.7	8	83	141	283	8
July	11.1	11.1	11.1	1	11.1	11.1	11.1	1	124	124	124	1
August	11.5	12.3	13.4	5	10.6	11.7	12.9	5	98	130	161	5
September	10.5	12.0	13.2	9	10.6	13.1	14.4	9	86	149	203	9
October	11.5	12.1	13.7	12	11.1	12.6	15.7	12	88	140	182	12
November	11.1	13.1	14.3	11	15.5	17.5	20.5	11	118	138	161	11
December	10.8	11.8	12.2	10	12.9	14.3	15.4	10	83	132	236	10
Annual	8.0	11.9	15.5	99	7.8	13.3	20.5	99	74	146	323	99
Location :Industrial Area, Satna												
January	14.6	16.5	18.4	9	16.0	18.0	19.0	9	124	239	400	9
February	13.4	16.1	17.8	8	15.5	17.0	18.2	8	211	249	290	8
March	14.3	16.1	17.3	9	16.2	17.8	20.0	9	163	245	363	9
April	9.6	10.5	12.3	8	13.7	15.8	17.9	8	141	200	268	8
May	10.4	15.0	19.7	9	11.1	15.4	20.1	9	194	222	271	9
June	13.0	15.9	21.9	8	14.4	16.3	19.8	8	190	235	316	8
July	12.1	12.1	12.1	1	13.2	13.2	13.2	1	186	186	186	1
August	13.2	14.0	16.4	5	17.0	17.4	18.0	5	131	191	332	5
September	11.9	14.3	17.2	9	12.9	16.0	21.3	9	103	179	263	9
October	11.2	11.9	13.0	12	12.7	14.7	17.5	12	113	159	290	12
November	13.4	14.8	16.1	11	13.6	17.0	20.0	11	139	221	301	11
December	11.6	16.1	18.4	10	16.2	17.7	19.3	10	116	139	159	10
Annual	9.6	14.6	21.9	99	11.1	16.5	21.3	99	103	205	400	99
Location :Gitanjali Bhawan, Korba												
January	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	123	181	279	9

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.12.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
February	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	108	271	578	10
March	14.8	15.7	17.4	5	19.3	21.1	23.0	5	114	248	377	8
April	12.0	14.2	15.6	5	17.1	19.2	21.1	5	190	236	304	7
May	15.0	17.7	20.9	14	14.4	19.2	25.0	15	177	306	443	15
June	14.3	17.6	23.3	11	18.4	21.8	26.5	11	63	206	382	12
July	13.0	16.1	19.0	7	15.5	22.9	27.0	7	63	106	167	11
August	11.9	13.3	16.9	5	15.3	19.7	23.2	5	62	118	241	11
September	12.6	13.1	14.1	11	17.0	17.6	18.1	11	99	155	197	12
October	10.8	13.6	14.7	14	16.6	17.3	18.1	14	152	199	256	14
November	10.7	13.2	15.9	12	16.8	20.7	26.3	12	54	162	225	12
December	12.7	13.8	15.8	12	18.1	20.6	22.7	12	40	127	226	14
Annual	10.7	14.9	23.3	96	14.4	19.8	27.0	97	40	192	578	135
Location :Pragati Nagar NTPC Colony, Korba												
May	15.6	18.5	21.4	8	14.3	18.0	22.9	8	121	197	283	10
June	13.0	18.0	23.9	11	15.7	18.6	23.0	11	63	102	144	11
July	12.0	15.5	19.0	8	15.0	21.9	27.0	8	43	84	106	11
August	13.7	14.1	14.4	5	20.0	21.0	21.8	5	25	46	74	12
September	13.7	14.0	14.4	11	21.8	22.4	22.9	11	39	63	87	11
November	12.8	13.9	15.5	12	20.6	22.2	23.8	12	44	77	119	12
December	12.7	13.6	15.0	13	21.5	22.0	22.3	13	39	57	94	13
Annual	12.0	15.3	23.9	68	14.3	21.0	27.0	68	25	87	283	80
Location :MPEB Sub Station, Birgaon, Urla, Raipur												
January	7.4	8.1	9.0	7	13.8	22.0	31.0	9	133	233	291	9
February	7.0	8.3	8.8	6	19.4	26.6	32.8	8	186	245	335	8
March	8.8	10.2	11.8	6	27.2	37.5	46.2	6	191	269	337	6
April	8.8	9.7	11.8	6	30.2	32.4	37.3	6	116	179	229	8
May	8.7	10.1	12.2	9	27.3	30.9	34.8	9	107	207	255	9
June	5.2	9.9	12.5	6	25.8	30.1	33.3	6	115	174	266	6
July	7.5	9.7	11.3	5	22.0	26.9	30.5	6	68	148	285	7
August	9.5	12.1	17.2	3	15.5	18.3	23.0	3	61	88	116	6
September	7.2	7.5	8.0	7	19.5	21.6	25.2	7	91	144	196	8
October	7.7	8.1	8.8	6	19.3	25.5	32.7	7	81	156	228	8
November	7.8	8.5	9.5	7	24.7	29.2	35.0	7	111	183	282	7
December	7.4	8.2	9.5	6	22.3	25.7	28.3	7	115	152	202	8
Annual	5.2	9.1	17.2	74	13.8	27.4	46.2	81	61	183	337	90

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.12.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location :M/S Wool Worth India Pvt. Ltd. Urla												
January	9.0	9.3	9.7	3	13.6	22.4	32.5	7	143	289	386	8
February	7.6	8.0	9.0	4	19.7	26.5	33.8	6	122	268	464	7
March	9.0	9.5	10.2	6	20.5	29.7	33.2	7	153	226	340	7
April	7.4	8.6	10.0	4	18.8	26.9	33.2	5	89	111	127	6
May	7.8	9.1	10.8	7	20.0	27.8	33.2	8	87	129	196	8
June	7.5	8.4	10.8	5	21.0	25.4	30.0	5	66	123	291	9
July	7.5	7.8	8.0	2	20.3	22.8	24.4	3	47	85	124	7
August	9.3	9.6	9.8	2	16.0	20.6	26.4	4	74	101	179	6
September	7.3	7.8	8.3	4	17.3	20.8	24.2	6	68	83	109	9
October	7.2	7.8	8.3	5	19.0	21.1	23.7	6	103	144	204	7
November	7.0	7.7	9.0	7	20.3	22.9	28.7	8	125	157	230	8
December	7.2	7.7	8.3	6	21.3	22.8	26.2	6	115	157	186	6
Annual	7.0	8.4	10.8	55	13.6	24.4	33.8	71	47	156	464	88
Location :Vijay Nagar, Jabalpur												
January	6.0	6.0	6.0	1	10.4	14.1	17.8	2	70	113	181	7
February	6.0	6.0	6.0	1	11.4	12.7	14.8	3	35	65	98	8
March	6.0	6.0	6.0	6	10.7	13.6	18.2	7	86	122	166	8
April	6.0	6.0	6.0	7	11.4	13.1	16.6	8	67	97	133	8
May	6.0	6.0	6.0	3	8.9	12.9	19.3	5	65	82	103	9
June	6.0	6.0	6.0	7	7.4	10.6	14.2	8	13	14	14	2
July	N.A.	N.A.	N.A.	0	N.A.	9.2	12.5	2	26	32	38	8
August	N.A.	N.A.	N.A.	0	N.A.	9.9	12.4	5	36	53	77	6
September	N.A.	N.A.	N.A.	0	N.A.	10.1	13.4	6	23	38	59	9
October	N.A.	N.A.	N.A.	0	N.A.	10.9	14.9	5	31	54	78	8
November	N.A.	N.A.	N.A.	0	N.A.	11.7	13.4	5	85	116	149	8
December	N.A.	N.A.	N.A.	0	N.A.	14.2	19.3	4	46	104	147	6
Annual	6.0	6.0	6.0	25	5.9	11.9	19.3	60	13	77	181	87

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

3.13 Meghalaya

3.13.1 AIR QUALITY MONITORING NETWORK :

CITY(IES)	Industrial	Residential	Sensitive	Total
Shillong	0	1	0	1

3.13.2 AMBIENT AIR QUALITY STATUS

Annual Mean Concentration Range (µg/m3)						
	Industrial (I)	SO_2 & NO_2	SPM	Residential (R)	SO_2 & NO_2	SPM
Low	*L*	0-40	0-180	L	0-30	0-70
Moderate	*M*	40-80	180-360	M	30-60	70-140
High	*H*	80-120	360-540	H	60-90	140-210
Critical	*C*	>120	>540	C	>90	>210

		Annual Mean Concentration (µg/m3)		
City / Location	Area Class	SO_2	NO_2	SPM
CITY : Shillong				
Board Office Permises, Motinagar	Residential	L	L	L

3.13.3 AIR QUALITY STATISTICS : The values of monthly and annual minimum, mean and maximum alongwith the number of monitored days for 16 or more hours of three monitored parameters viz. SO_2, NO_2, and SPM are presented in Table 3.13.1.

Table 3.13.1 AMBIENT AIR QUALITY STATISTICS - 1997
STATE : Meghalaya

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location :Boards Office Permises, Motinagar, Shillong												
January	6.0	6.0	6.0	6	3.0	4.4	6.1	6	35	41	45	6
February	6.0	6.0	6.0	5	3.0	4.2	6.0	5	36	41	45	5
March	6.0	6.0	6.0	5	3.0	3.0	3.0	5	31	36	38	5
April	6.0	6.0	6.0	5	3.0	3.9	5.5	5	25	29	35	5
May	6.0	7.6	12.5	6	3.0	10.2	16.3	6	27	38	43	6
June	6.0	6.0	6.0	6	3.0	3.0	3.0	6	22	24	27	6
July	6.0	6.0	6.0	8	3.0	3.0	3.0	8	17	20	24	8
August	6.0	6.0	6.0	7	3.0	3.0	3.0	7	22	24	26	7
September	6.0	6.0	6.0	4	3.0	3.0	3.0	4	23	23	24	4
October	6.0	6.0	6.0	2	3.0	3.0	3.0	2	28	29	29	2
November	6.0	6.0	6.0	4	3.0	3.0	3.0	4	26	28	30	4
December	6.0	7.9	13.5	4	3.0	5.2	11.3	4	43	45	46	4
Annual	6.0	6.3	13.5	62	3.0	4.1	16.3	62	17	31	46	62

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

3.14 ORISSA

3.14.1 AIR QUALITY MONITORING NETWORK :

CITY(IES)	Industrial	Residential	Sensitive	Total
Angul	1	1	0	2
Rourkela	2	0	0	2
Rayagada	1	1	0	2
Talcher	1	0	0	1

3.14.2 AMBIENT AIR QUALITY STATUS

Annual Mean Concentration Range (µg/m3)						
	Industrial (I)	SO_2 & NO_2	SPM	Residential (R)	SO_2 & NO_2	SPM
Low	*L*	0-40	0-180	L	0-30	0-70
Moderate	*M*	40-80	180-360	M	30-60	70-140
High	*H*	80-120	360-540	H	60-90	140-210
Critical	*C*	>120	>540	C	>90	>210

		Annual Mean Concentration (µg/m3)		
City / Location	**Area Class**	**SO_2**	**NO_2**	**SPM**
CITY : Angul				
R.O., Angul	Residential	L	L	M
NALCO Nagar	Industrial	L	L	L
CITY : Rourkela				
Municipality Office	Industrial	L	L	L
IDL - Post (Sonaparbat)	Industrial	L	L	L
CITY : Rayagada				
Rayagada	Residential	L	L	M
Jaykaypur	Industrial	L	L	L
CITY : Talcher				
TTPS Colony	Industrial	L	L	L

3.14.3 AIR QUALITY STATISTICS : The values of monthly and annual minimum, mean and maximum alongwith the number of monitored days for 16 or more hours of three monitored parameters viz. SO_2, NO_2, and SPM are presented in Table 3.14.1.

Table 3.14.1 AMBIENT AIR QUALITY STATISTICS - 1997
STATE : Orissa

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location : T.T.P.S. Colony, Talcher												
January	6.0	9.2	10.7	4	3.7	7.1	8.7	4	4	4	4	4
February	9.1	9.5	10.2	3	10.4	11.5	12.1	3	107	118	133	3
March	11.1	11.8	12.4	4	9.2	9.7	10.0	4	111	153	180	4
April	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	125	212	304	6
May	N A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	192	219	251	8
June	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	164	212	303	5
July	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	144	175	201	6
August	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	41	72	88	5
September	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	70	94	131	7
October	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	157	217	320	8
November	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	91	119	141	7
December	7.1	12.7	18.2	5	19.4	27.3	53.3	5	92	124	172	10
Annual	6.0	11.0	18.2	16	3.7	14.9	53.3	16	4	150	320	73
Location : Regional Office, Angul												
January	15.0	22.5	30.8	9	9.5	23.5	45.8	9	4	4	4	9
February	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	188	231	387	8
March	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	61	132	195	7
April	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	71	97	114	7
May	N.A.	N A.	N.A.	0	N.A.	N.A.	N.A.	0	75	98	113	6
June	N A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	90	100	117	6
July	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	77	93	109	6
August	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	76	86	102	6
September	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	46	68	89	8
October	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	76	111	161	8
November	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	126	164	202	6
December	14.8	16.0	16.9	3	13.7	15.4	17.4	3	71	106	140	10
Annual	14.8	20.9	30.8	12	9.5	21.4	45.8	12	4	106	387	87
Location : NALCO, Nagar, Angul												
January	9 6	12.8	18.3	7	8.5	10.4	14.5	7	4	4	4	6
February	N A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	84	136	192	9
March	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	64	152	247	9
April	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	98	116	138	6

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.14.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
May	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	84	123	180	8
June	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	48	83	102	5
July	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	42	81	113	9
August	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	37	86	141	6
September	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	27	33	40	5
October	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	41	91	136	6
November	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	84	113	153	7
December	6.6	12.5	15.4	4	4.3	8.8	15.0	4	65	86	137	10
Annual	6.6	12.7	18.3	11	4.3	9.8	15.0	11	4	97	247	86
Location : Municipality Office, Rourkela												
January	25.8	40.4	55.5	12	14.8	20.3	26.5	12	152	273	375	12
February	30.5	40.1	50.2	11	18.5	27.3	33.3	11	166	214	292	11
March	15.0	28.3	41.2	14	20.3	28.2	36.5	14	145	243	301	14
April	13.8	20.3	32.8	12	16.3	24.5	32.0	12	123	154	193	12
May	7.3	14.1	21.3	12	17.8	26.0	31.3	12	95	168	241	12
June	10 8	17.8	33.0	11	18.7	24.8	36.0	11	54	107	162	12
July	10.0	21.0	33.3	10	16.0	28.8	37.5	10	44	78	142	13
August	16.8	21.0	29.5	8	26.7	32.6	41.0	8	47	69	99	13
September	12.5	18.1	22.3	12	21.5	27.0	31.3	12	62	94	171	13
October	22.3	22.3	22.3	1	25.2	25.2	25.2	1	81	106	131	2
November	21.8	26.2	31.3	7	10.0	15.0	23.5	7	114	206	294	10
December	22.0	29.0	39.4	8	13.5	26.1	39.8	8	97	170	275	13
Annual	7.3	25.1	55.5	118	10.0	25.7	41.0	118	44	159	375	137
Location : IDL Police Out-Post, Sonaparbat, Rourkela												
January	34.7	50.0	60.3	12	11.5	14.0	17.5	12	131	206	278	12
February	35.8	48.5	61.2	9	11.3	15.9	20.2	9	122	204	276	9
March	30.5	35.0	41.2	14	7.8	11.9	17.8	14	164	294	512	14
April	22.0	29.4	35.8	12	10.2	12.7	17.0	12	101	151	271	12
May	13.8	18.0	24.0	11	14.0	17.5	23.8	11	104	180	242	11
June	12.5	16 0	19.8	11	17.8	22.3	30.5	11	63	150	240	12
July	13.2	17.5	22.0	9	21.0	30.1	37.0	9	62	110	160	13
August	17.8	19.3	21.8	6	20.3	27.0	34.8	6	49	92	178	11
September	13.0	17.1	22.5	11	19.3	25.8	31.8	10	52	77	94	11

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.14.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
October	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	74	90	122	8
November	17.0	25.1	34.5	10	18.5	29.6	39.5	10	102	142	208	11
December	21.2	40.6	52.0	6	9.6	16.2	24.6	6	61	115	143	10
Annual	12.5	28.9	61.2	111	7.8	19.6	39.5	110	49	155	512	134

Location : Rayagada, Rourkela

MONTH	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
January	6.8	8.4	10.0	2	4.4	10.0	14.5	12	4	4	4	12
February	6.4	8.6	12.3	12	6.7	10.1	13.9	12	68	92	117	12
March	6.1	9.4	15.9	8	6.2	12.9	19.4	8	59	111	153	8
April	12.1	14.0	15.8	8	11.7	14.1	17.1	8	89	115	135	8
May	10.4	16.4	21.4	8	16.2	21.6	26.8	8	47	83	123	8
June	8.0	17.2	21.4	8	13.0	21.9	29.5	8	63	101	133	8
July	6.2	8.7	11.8	8	4.9	13.1	25.6	8	41	101	159	8
August	7.0	9.7	12.1	7	8.3	14.2	28.5	8	39	82	108	8
September	11.2	13.8	21.1	5	6.0	18.2	27.8	8	20	40	64	8
October	8.0	11.6	16.0	8	9.4	19.6	25.2	8	71	95	114	8
November	6.3	7.4	10.7	6	9.4	14.2	21.8	8	76	109	159	8
December	8.8	10.6	15.0	12	9.8	14.7	22.3	12	78	112	161	12
Annual	6.1	11.4	21.4	92	4.4	15.0	29.5	108	4	85	161	108

Location : Jaykaypur, Rayagada

MONTH	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
January	8.1	11.4	15.5	10	8.1	13.8	18.9	10	4	4	4	10
February	6.0	9.0	15.1	9	7.4	14.5	23.0	9	168	194	228	9
March	11.6	16.6	23.0	8	13.7	18.0	21.7	8	157	213	272	8
April	6.0	9.8	16.8	8	4.8	13.4	17.7	8	31	70	95	8
May	23.0	24.7	28.6	8	21.0	27.8	32.0	8	132	210	267	8
June	9.1	16.5	25.7	8	10.9	21.1	29.7	8	80	127	164	8
July	7.8	14.9	18.4	8	14.3	19.2	21.9	8	72	116	168	8
August	6.0	10.5	25.5	7	5.3	17.8	36.4	8	55	111	156	8
September	6.9	14.1	27.6	8	19.8	24.8	29.3	8	69	88	114	8
October	6.8	10.1	18.3	8	8.9	23.0	29.0	8	69	84	106	8
November	12.8	21.3	32.1	8	14.7	25.5	35.4	8	92	118	219	8
December	6.2	14.1	24.9	10	8.0	17.4	26.5	10	39	77	126	11
Annual	6.0	14.3	32.1	100	4.8	19.5	36.4	101	4	115	272	102

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

3.15 PUNJAB

3.15.1 AIR QUALITY MONITORING NETWORK :

CITY(IES)	Industrial	Residential	Sensitive	Total
Ludhiana	2	1	0	3
Jalandhar	0	2	0	2
Gobindgarh	2	0	0	2

3.15.2 AMBIENT AIR QUALITY STATUS

Annual Mean Concentration Range (µg/m3)						
	Industrial (I)	SO_2 & NO_2	SPM	Residential (R)	SO_2 & NO_2	SPM
Low	*L*	0-40	0-180	L	0-30	0-70
Moderate	*M*	40-80	180-360	M	30-60	70-140
High	*H*	80-120	360-540	H	60-90	140-210
Critical	*C*	>120	>540	C	>90	>210

		Annual Mean Concentration (µg/m3)		
City / Location	Area Class	SO_2	NO_2	SPM
CITY : **Ludhiana**				
Milk Plant	Industrial	L	M	M
Clock Tower, M.C. Office	Residential	L	M	C
Rita Sewing Machine	Industrial	L	M	M
CITY : **Jalandhar**				
Regional Office	Residential	L	M	H
Municipal Council Tubewell No. 27	Residential	L	M	C
CITY : **Gobindgarh**				
Malhotra Steels Mandi	Industrial	L	M	M
Punjab Steel Mills, Mandi	Industrial	L	M	M

3.15.3 AIR QUALITY STATISTICS : The values of monthly and annual minimum, mean and maximum alongwith the number of monitored days for 16 or more hours of three monitored parameters viz. SO_2, NO_2, and SPM are presented in Table 3.15.1.

Table 3.15.1 AMBIENT AIR QUALITY STATISTICS - 1997
STATE : Punjab

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location :Milk Plant, Ludhiana												
January	19.1	20.3	22.4	9	43.9	47.7	50.5	9	277	298	323	9
February	16.8	18.9	21.6	7	43.5	47.8	49.8	7	195	293	329	7
March	15.7	18.2	20.5	5	43.6	45.7	48.8	5	252	293	310	5
April	16.2	18.4	19.8	8	43.0	45.5	47.8	8	290	326	377	8
May	17.7	19.8	24.9	9	42.8	45.4	47.9	9	292	321	384	9
June	18.9	22.4	29.1	7	45.2	47.8	49.7	7	273	287	302	7
July	17.7	21.1	22.7	7	44.3	46.3	49.9	7	279	299	315	7
August	18.6	20.3	22.3	7	41.4	44.9	47.4	7	217	295	333	7
September	17.9	20.7	29.1	11	43.1	45.8	49.7	11	254	323	377	11
October	20.0	21.1	21.8	7	40.8	42.8	45.5	7	229	349	384	7
November	22.1	22.1	22.1	1	42.2	42.2	42.2	1	233	241	248	2
Annual	15.7	20.2	29.1	78	40.8	46.0	50.5	78	195	308	384	79
Location : Clock Tower, M.C. Office, Ludhiana												
January	14.4	15.7	16.4	6	40.0	44.9	47.2	6	156	226	269	7
February	14.1	15.0	16.1	7	35.8	38.1	44.8	7	164	246	271	8
March	14.2	15.9	17.7	6	37.3	42.3	48.0	6	166	227	271	7
April	17.0	18.2	20.4	6	40.5	43.5	45.1	6	179	243	270	6
May	17.9	18.7	21.3	7	39.1	42.8	46.2	7	235	261	274	7
June	15.5	17.5	20.6	8	38.4	43.2	46.5	8	144	211	261	8
July	18.2	20.0	22.6	9	44.1	44.8	45.9	9	166	238	267	9
August	17.6	19.0	20.9	7	40.9	44.6	46.6	7	237	258	269	7
September	16.2	18.1	20.0	11	40.5	43.1	45.2	11	144	245	274	11
October	19.2	20.9	22.2	13	40.9	42.0	43.3	13	201	261	289	13
November	20.3	20.6	21.1	5	40.7	41.1	42.1	5	258	274	309	5
Annual	14.1	18.4	22.6	85	35.8	42.8	48.0	85	144	245	309	88
Location : Rita Sewing Machines, Ludhiana												
January	18.3	19.4	20.6	8	46.8	48.9	50.5	8	302	348	367	8
February	17.7	19.3	20.6	7	45.2	48.3	50.2	7	313	358	372	7
March	16.6	18.3	19.7	9	47.4	48.9	51.4	9	359	373	416	9
April	17.4	18.4	19.4	8	45.5	46.3	47.9	8	215	353	376	8
May	18 4	20.9	26.2	9	45.4	48.2	50.7	9	214	345	397	9
June	21.2	23.1	27.1	7	45.1	49.6	52.4	7	198	316	353	8

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.15.1 Contd....

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
July	20.5	21.3	22.1	9	42.4	44.7	48.1	9	314	337	358	9
August	19.7	20.5	21.5	8	44.4	46.1	48.6	8	176	327	374	9
September	18.0	20.2	27.1	11	43.9	46.3	49.7	11	220	348	434	11
October	19.4	21.1	21.9	12	40.9	42.6	45.0	12	195	318	388	12
November	21.2	21.3	21 4	3	41.4	41.7	42.1	3	375	379	382	3
Annual	16.6	20.3	27.1	91	40.9	46.6	52.4	91	176	343	434	93
Location : Regional Office, Jalandhar												
January	22.5	23.4	24.7	8	28.3	30.4	34.2	8	150	226	311	9
February	23.4	23.6	23.7	4	32.0	33.6	34.9	4	169	211	253	4
March	21.6	22.7	23.8	6	30.3	32.2	34.9	6	106	182	213	7
April	23.4	23.5	23.6	5	29.4	30.9	32.1	5	109	143	177	5
May	20.3	23.5	26.0	8	28.8	30.4	33.2	8	113	167	193	9
June	23.1	23.8	25.5	9	28.2	30.7	31.3	9	158	207	274	9
July	20.6	23.1	25.6	8	27.8	31.2	34.5	8	158	173	199	8
August	19.5	21.2	23.8	8	29.8	31.1	32.5	8	159	176	187	8
September	20.0	21.0	22.3	13	30.4	32.3	34.5	13	164	184	213	13
October	20.6	21.6	22.8	12	30.8	31.5	32.3	12	178	197	222	12
November	20.5	21.1	22.0	10	30.7	32.4	34.7	10	126	197	216	12
December	20.7	21.6	22.5	9	30.8	32.0	33.7	9	103	188	224	11
Annual	19.5	22.3	26.0	100	27.8	31.5	34.9	100	103	189	311	107
Location :Municipal Council Tubewell No. 27, Jalandhar												
January	23.4	24.1	25.4	8	39.4	44.5	47.4	8	220	263	351	8
February	23.6	24.0	24.8	4	37.7	41.2	44.3	4	209	216	229	4
March	23.7	24.0	24.6	5	40.0	46.2	50.2	5	133	208	258	6
April	23.8	24.0	24.3	8	34.0	44.4	46.6	8	127	165	199	9
May	22.5	24.0	24.6	7	38.1	44.3	46.9	7	124	205	250	8
June	23.6	24.2	24.8	8	41.4	45.2	48.8	8	217	226	236	8
July	22.4	23.7	24.5	9	42.0	46.1	49.0	8	146	194	226	9
August	20.6	22.1	24.0	8	42.9	46.8	49.5	8	180	212	234	8
September	21.2	23.4	27.3	12	43.0	47.1	50.2	12	175	209	229	13
October	22.5	23.6	24.3	11	42.8	46.4	49.2	11	156	210	231	11
November	22.3	23.8	24.5	12	45.5	47.7	49.7	12	214	226	237	12
December	23.3	23.7	24.0	7	46.8	47.5	47.8	7	121	192	229	12
Annual	20.6	23.7	27.3	99	34.0	45.9	50.2	98	121	210	351	108

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.15.1 Contd....

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location :Malhotra Steels, Mandi Gobindgarh												
January	21.8	23.5	25.7	7	47.2	48.8	51.9	7	305	338	387	8
February	13.0	20.8	25.4	8	28.9	45.3	52.9	8	27	271	342	8
March	19.8	22.8	27.7	8	45.7	49.5	56.1	8	254	312	346	8
April	17.3	20.0	23.0	8	36.8	45.3	48.4	8	251	299	343	8
May	18.0	20.2	22.6	7	39.4	45.4	53.6	7	240	306	388	7
June	17.3	20.2	23.2	7	39.6	44.5	48.4	7	251	304	340	8
July	18.3	20.4	22.9	6	41.3	44.8	48.2	6	208	288	363	8
August	17.8	18.9	20.5	7	44.1	46.7	49.8	7	197	285	348	9
September	16.7	18.6	21.2	10	42.4	46.1	49.2	10	167	268	304	10
October	17.0	18.1	19.6	4	45.0	46.1	47.3	4	157	241	297	6
November	18.3	18.8	19.6	3	43.0	43.9	45.5	3	295	308	321	3
December	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	174	233	291	2
Annual	13.0	20.3	27.7	75	28.9	46.2	56.1	75	27	291	388	85
Location :Punjab Steel Mills, Mandi Gobindgarh												
February	23.3	23.3	23.3	1	47.5	47.5	47.5	1	284	284	284	1
March	18.9	22.3	25.0	6	37.4	43.5	46.7	6	83	249	310	7
April	16 3	18.4	20.7	8	41.5	45.3	49.4	8	171	271	302	9
May	21.0	22 7	24 4	2	44.3	45.5	46.6	2	322	345	367	2
June	17.5	19 8	25.1	7	38.8	42.9	47.8	7	206	276	342	8
July	17.2	19.8	22.7	9	39.4	45.5	50.8	9	218	297	338	9
August	16 1	16.8	18.0	6	41.7	45.0	46.8	6	121	271	334	7
September	15.5	17.1	19.7	8	41.5	43.9	46.1	8	234	273	311	8
October	18 8	19.8	20.7	5	43.9	45.6	48.7	5	262	308	342	5
November	16 4	18.8	20.4	5	45 4	46.8	49.0	5	256	287	314	5
December	18.4	20.5	23.9	8	38 3	46.0	50.0	8	199	286	363	9
Annual	15.5	19.4	25.1	65	37.4	45.0	50.8	65	83	281	367	70

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

3.16 RAJASTHAN

3.16.1 AIR QUALITY MONITORING NETWORK :

CITY(IES)	Industrial	Residential	Sensitive	Total
Alwar	1	2	0	3
Jaipur	1	2	0	3
Jodhpur	1	2	0	3
Kota	1	1	1	3
Chittor	1	0	0	2
Udaipur	0	3	0	3

3.16.2 AMBIENT AIR QUALITY STATUS

Annual Mean Concentration Range (µg/m3)						
	Industrial (I)	SO_2 & NO_2	SPM	Residential (R)	SO_2 & NO_2	SPM
Low	*L*	0-40	0-180	L	0-30	0-70
Moderate	*M*	40-80	180-360	M	30-60	70-140
High	*H*	80-120	360-540	H	60-90	140-210
Critical	*C*	>120	>540	C	>90	>210

		Annual Mean Concentration (µg/m3)		
City / Location	**Area Class**	**SO_2**	**NO_2**	**SPM**
CITY : Alwar				
RIICO Pump House	Residential	L	H	C
Regional Office	Residential	L	H	C
Gaurav Solvex	Industrial	L	M	H
CITY : Jaipur				
Tripolia Bazar	Residential	L	L	C
PHED, Gandhi Nagar	Residential	L	L	H
Jothwara Indl. Area	Industrial	L	L	M
CITY : Jodhpur				
Sojati Gate	Residential	L	L	C
Basni Indl. Area	Industrial	L	L	M
Reginal Office	Residential	L	L	H

Contd...

Table 3.16.2 (Contd...)

		Annual Mean Concentration (µg/m3)		
City / Location	**Area Class**	**SO_2**	**NO_2**	**SPM**
CITY : Kota				
Anantpura	Industrial	L	M	L
Barkhera	Sensitive	H	C	C
Veternary Hospital	Residential	L	M	H
CITY : Chittor				
RIICO	Industrial	L	M	L
CITY : Udaipur				
Town Hall	Residential	L	M	H
D.I.C.	Residential	L	M	C
Regional Office	Residential	L	M	C

3.16.3 AIR QUALITY STATISTICS : The values of monthly and annual minimum, mean and maximum alongwith the number of monitored days for 16 or more hours of three monitored parameters viz. SO_2, NO_2, and SPM are presented in Table 3.16.1.

Table 3.16.1 AMBIENT AIR QUALITY STATISTICS - 1997
STATE : Rajasthan

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location :RIICO Office, Anantpura, Kota												
January	15.4	18.5	24.1	7	38.1	52.1	65.7	7	75	132	231	9
February	16.4	19.1	24.7	8	39.7	56.7	77.7	8	127	188	256	8
March	18.5	20.9	24.3	6	44.5	51.3	59.3	6	62	168	245	9
April	9.6	17.2	21.7	7	43.4	51.7	58.5	7	55	111	148	9
May	15.0	17.3	20.0	8	41.1	48.6	54.1	8	63	150	335	10
June	11.4	14.9	18.4	7	37.3	46.9	55.6	7	47	94	139	7
July	11.2	14.7	18.1	7	43.9	49.1	53.8	7	102	188	223	9
August	12.0	14.0	15.8	5	41.2	47.0	53.0	5	71	149	221	7
September	11.0	15.5	20.2	8	38.7	46.6	51.7	8	54	128	209	9
October	14.1	17.0	20.6	9	45.8	47.5	52.5	9	90	199	346	9
November	13.1	15.9	20.0	8	42.2	49.8	55.9	8	147	218	275	7
December	8.1	11.1	20.1	7	17.1	29.1	52.3	7	121	229	365	10
Annual	8.1	16.4	24.7	87	17.1	48.1	77.7	87	47	164	365	103
Location :Barkhera, Kota												
January	15.3	18.8	21.9	8	42.2	52.5	58.5	8	89	156	202	9
February	13.5	17.7	20.4	8	46.9	54.2	63.6	8	109	166	211	8
March	15.3	19.6	22.9	8	45.7	53.1	61.9	8	128	184	354	9
April	14.9	17.3	20.0	6	46.1	51.0	58.9	6	91	129	173	6
May	14.2	16.7	19.3	7	44.6	51.2	56.5	7	76	118	153	8
June	16.0	17.8	20.5	5	45.3	49.6	53.3	5	51	124	165	5
July	14.4	15.8	20.4	8	43.9	50.4	60.8	8	82	136	188	8
August	10.7	13.3	15.2	8	38.9	48.1	55.9	8	37	89	150	10
September	13.6	15.9	19.0	7	40.8	44.3	47.2	7	28	107	200	8
October	14.0	16.1	18.7	9	43.6	48.4	57.0	9	51	104	155	9
November	12.8	14.5	16.5	8	41.7	48.6	55.1	8	61	152	349	9
December	8.2	12.7	18.3	7	20.2	30.2	50.7	7	83	159	263	9
Annual	8.2	16.3	22.9	89	20.2	48.6	63.6	89	28	136	354	98
Location :Vetrinary Hospital, Kota												
January	11.6	16.6	23.6	8	28.1	46.4	58.0	8	66	134	181	9
February	15.2	18.0	21.5	7	45.7	58.7	72.3	7	147	193	245	8
March	19.5	20.2	20.9	5	47.2	55.3	62.9	5	78	152	197	8
April	18.7	19.7	20.9	8	44.9	51.5	57.7	8	132	212	478	8

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.16.1 Contd..

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
May	12.5	16.9	19.4	7	44.5	48.8	54.0	7	76	176	270	9
June	10.5	16.8	20.0	10	44.2	48.9	55.6	10	46	98	192	9
July	12.2	14.8	16.7	8	42.0	46.4	50.7	8	68	169	256	9
August	14.2	15.8	17.3	5	48.6	52.0	53.7	5	30	68	115	8
September	15.2	16.6	19.5	7	43.3	47.2	48.8	7	54	91	159	9
October	13.5	16.4	20.2	6	42.1	46.4	51.4	6	97	140	187	7
November	14.3	20.0	42.6	7	45.7	49.3	53.5	7	71	166	262	7
December	8.6	11.2	15.2	6	23.1	32.0	52.7	6	65	220	374	9
Annual	8.6	16.9	42.6	84	23.1	48.6	72.3	84	30	151	478	100
Location :Tripolia Bazar, Jaipur												
January	6.0	12.1	42.0	9	5.5	18.6	47.7	9	99	255	378	6
February	6.0	7.1	12.7	8	3.0	9.4	25.7	8	198	262	299	6
March	6.0	6.5	8.5	8	3.7	7.4	15.5	8	165	291	442	5
April	6.0	6.6	7.3	8	3.2	13.2	29.7	8	145	322	515	6
May	6.0	6.1	6.5	6	3.0	13.5	24.0	6	N.A.	N.A.	N.A.	0
June	6.0	6.2	7.3	7	3.0	7.5	11.0	7	N.A.	N.A.	N.A.	0
July	6.0	15.6	63.8	6	3.0	7.9	15.7	6	N.A.	N.A.	N.A.	0
August	6.0	6.0	6.0	7	3.8	6.2	9.3	7	N.A.	N.A.	N.A.	0
September	6.0	6.7	8.4	6	4.8	13.4	27.5	6	64	108	150	4
October	6.0	6.2	6.5	5	7.2	17.5	31.8	5	49	89	110	3
November	6.0	6.1	6.5	5	4.8	14.8	22.3	5	106	149	177	4
December	6.0	6.0	6.0	6	6.8	12.9	32.7	6	91	112	126	3
Annual	6.0	7.7	63.8	81	3.0	11.8	47.7	81	49	219	515	37
Location :PHED, Gandhi Nagar, Jaipur												
January	6.0	10.1	23.2	7	3.0	13.2	35.0	7	140	338	479	7
February	6.0	11.8	44.5	8	5.7	19.3	43.8	8	128	301	389	8
March	6.0	6.8	8.0	7	4.7	7.7	13.0	7	99	244	337	7
April	6.0	6.2	7.5	8	3.0	12.0	19.7	8	49	335	548	8
May	6.0	6.0	6.0	4	3.0	11.8	21.2	4	193	267	362	4
June	6.0	6.0	6.0	9	4.0	13.1	59.2	9	32	149	242	11
July	6.0	6.5	9.2	7	3.0	8.5	17.0	7	53	81	130	7
August	6.0	6.0	6.0	6	5.2	8.7	14.2	6	48	82	147	9
September	6.0	6.8	9.4	6	4.4	9.3	15.4	6	23	64	112	4
October	6.0	6.0	6.2	7	3.8	14.8	47.0	7	48	59	96	5
November	6.0	6.0	6.0	6	3.0	9.9	22.5	6	43	122	218	7

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.16.1 Contd..

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
December	6.0	6.0	6.0	6	5.0	12.7	33.5	6	90	118	154	4
Annual	6.0	7.1	44.5	81	3.0	12.0	59.2	81	23	186	548	81
Location :Jhotwara Industrial Area, Jaipur												
January	6.0	18.5	38.5	8	11.3	36.3	108.0	8	113	211	351	6
February	9.2	18.7	43.6	7	5.6	25.0	43.8	7	159	344	554	6
March	6.0	13.5	44.6	7	4.3	12.4	22.3	7	232	344	548	4
April	6.0	7.5	14.8	7	14.5	24.0	37.8	7	147	347	583	4
May	6.0	11.4	26.4	6	15.8	36.6	65.2	6	N.A.	N.A.	N.A.	0
June	6.0	9.1	20.2	6	5.8	13.7	21.7	6	N.A.	N.A.	N.A.	0
July	6.0	6.7	7.7	7	3.7	19.9	71.8	7	N.A.	N.A.	N.A.	0
August	6.0	7.9	12.0	5	5.0	15.6	40.5	5	N.A.	N.A.	N.A.	0
September	6.0	6.9	10.3	5	7.6	12.6	16.2	5	100	198	345	3
October	6 0	6.0	6.0	6	7.8	18.2	25.2	5	125	176	213	3
November	6.0	10.2	23.7	6	5.7	18.9	38.2	6	85	192	506	5
December	6.0	6.3	7.0	6	4.2	10.7	19.3	6	76	154	188	4
Annual	6.0	10.6	44.6	76	3.7	20.9	108.0	75	76	251	583	35
Location :RIICO Pump House, Alwar												
January	13.8	15.4	17.6	6	77.2	85.9	92.2	6	130	234	312	9
February	13.5	13.5	13.5	1	80.8	80.8	80.8	1	187	307	489	8
March	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	237	360	513	8
April	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	125	299	560	9
May	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	117	333	589	9
June	12.3	13.8	15.1	4	75.0	83.4	94.3	4	104	327	703	8
July	12.5	14.1	15.5	9	77.0	80.7	87.2	9	70	215	397	9
August	11.3	13.8	16.5	7	72.4	82.5	93.7	7	35	156	234	7
September	11.2	12.4	13.6	6	72.8	79.6	89.9	6	35	157	290	9
October	11.0	13.5	17.2	8	59.8	81.2	102.0	8	158	307	513	8
November	11.1	13.0	14 3	8	65.7	73.5	88.0	8	205	310	376	8
December	10.6	12.7	16.3	9	69.0	76.7	93.7	9	100	177	378	9
Annual	10.6	13.6	17.6	58	59.8	80.0	102.0	58	35	264	703	101
Location :Regional Office, Alwar												
January	13.2	15.9	23.1	9	68.7	74.5	84.2	9	152	484	831	9
February	13.3	13.4	13.5	2	77.6	81.8	85.9	2	310	431	695	8

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.16.1 Contd..

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
March	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	170	277	411	7
April	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	218	329	488	7
May	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	230	399	562	9
June	12.4	14.3	17.6	6	74.2	85.0	111.7	6	175	277	387	9
July	11.7	12.9	15.5	8	70.6	75.9	87.2	8	126	219	407	8
August	11.2	12.9	14.0	8	62.1	77.1	90.0	8	58	217	441	8
September	11.4	12.9	13.9	7	71.8	80.3	96.0	7	224	291	448	9
October	11.4	12.6	14.2	8	70.7	74.5	88.9	8	135	307	500	8
November	10.9	12.5	14.3	8	66.6	70.9	81.9	8	243	437	665	8
December	10.5	12.0	13.9	9	68.3	69.9	71.8	9	132	285	450	9
Annual	10.5	13.2	23.1	65	62.1	75.7	111.7	65	58	331	831	99
Location :Gaurav Solvex, Alwar												
January	13.2	17.0	21.0	8	81.6	91.0	113.3	8	412	669	970	9
February	14.1	14.2	14.2	2	82.1	86.8	91.5	2	411	705	1237	8
March	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	446	820	1167	9
April	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	124	340	655	9
May	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	118	297	468	9
June	11.2	12.9	14.2	3	62.6	69.8	79.4	3	96	198	456	8
July	12.0	13.9	16.8	8	68.2	76.5	86.8	8	73	160	244	8
August	10.6	13.0	14.9	9	62.7	73.6	81.8	9	49	144	334	9
September	11.4	13.0	14.0	8	73.0	81.0	86.9	8	146	345	564	8
October	10.3	12.7	14.4	9	67.9	78.7	83.8	9	228	382	548	9
November	11.6	12.8	14.1	9	67.6	73.7	78.1	9	256	518	715	9
December	11.0	13.3	15.6	9	66.5	79.4	98.6	9	217	413	685	9
Annual	10.3	13.6	21.0	65	62.6	78.7	113.3	65	49	418	1237	104
Location :Regional Office, Jodhpur												
July	6.0	6.1	6.4	4	7.7	11.3	13.3	4	134	198	257	4
August	6.0	6.3	8.1	7	10.8	17.1	28.4	7	109	193	366	8
September	6.0	6.3	7.2	8	4.9	11.5	14.6	8	60	135	214	9
October	6.0	6.1	6.5	9	4.4	9.3	12.2	9	79	149	270	9
November	6.0	6.3	7.1	8	6.8	10.3	14.8	8	152	220	279	8
December	6.0	6.0	6.0	9	5.0	8.4	11.4	9	169	258	401	9
Annual	6.0	6.2	8.1	45	4.4	11.1	28.4	45	60	191	401	47

Note:N.A.-Data Not Available/Inadequate, Units in μg/m^3, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.16.1 Contd..

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location :Sojati Gate, Jodhpur												
July	6.6	6.9	7.1	3	8.0	9.2	10.3	3	339	412	518	3
August	6.0	6.1	6.6	7	11.7	16.5	22.5	7	100	297	423	9
September	6.0	6.8	8.5	9	12.4	18.1	25.2	9	236	315	426	9
October	6.0	7.5	11.7	9	9.4	13.1	19.7	9	155	318	492	9
November	6.0	10.6	33.8	8	9.7	23.3	37.4	8	302	348	426	8
December	6.0	6.4	7.2	9	9.3	17.4	29.8	9	240	342	433	9
Annual	6.0	7.4	33.8	45	8.0	17.0	37.4	45	100	329	518	47
Location :Basni Industrial Area, RIICO Office, Jodhpur												
July	6.6	6.6	6.6	2	9.3	10.4	11.5	2	198	272	410	3
August	6.0	7.1	9.1	9	9.4	25.6	86.6	9	191	268	353	9
September	6.0	12.7	45.8	7	15.8	22.4	31.8	8	136	223	339	8
October	6.0	6.1	6.5	7	9.6	12.0	14.9	7	154	248	335	9
November	6.0	10.8	21.8	8	10.4	19.1	27.4	8	106	223	278	9
December	6.9	8.2	11.9	8	12.6	23.5	42.6	8	251	343	411	8
Annual	6.0	8.8	45.8	41	9.3	20.4	86.6	42	106	261	411	46
Location :RIICO, Chittor												
January	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	99	241	395	9
February	13.6	17.7	27.6	8	38.8	50.7	60.2	8	97	126	150	8
March	11.9	17.5	28.4	9	38.1	48.6	62.1	9	86	123	151	9
April	10.6	13.6	16.1	8	34.4	43.4	49.7	8	118	152	270	8
May	12.7	16.0	19.0	9	37.4	49.7	64.1	9	95	113	167	9
Annual	10.6	16.2	28.4	34	34.4	48.2	64.1	34	86	151	395	43
Location :Regional Office, Udaipur												
January	12.1	14.6	18.3	3	20.4	26.2	34.4	3	125	309	480	8
February	11.4	19.7	41.3	8	21.1	37.1	61.0	8	261	312	406	8
March	12.8	16.6	25.6	7	16.5	34.8	48.9	7	121	246	368	8
April	10.5	13.7	17.6	7	12.2	17.2	40.5	7	48	99	212	7
May	10.0	13.8	19.8	9	10.2	13.9	30.0	9	70	318	1025	9
June	11.3	13.1	15.4	5	12.8	14.5	17.8	5	82	156	220	9
July	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	80	133	192	9
August	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	49	113	170	8

Note:N.A.-Data Not Available/Inadequate, Units in µg/m^3, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.16.1 Contd..

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
September	N.A.	N.A.	N.A.	0	N.A.	31.5	42.2	6	79	108	166	10
October	N.A.	N.A.	N.A.	0	N.A.	18.2	31.4	8	88	174	302	8
November	N.A.	N.A.	N.A.	0	N.A.	65.0	163.9	8	190	298	519	8
December	N.A.	N.A.	N.A.	0	N.A.	100.2	163.1	5	99	292	638	9
Annual	10.0	15.4	41.3	39	10.2	34.7	163.9	66	48	213	1025	101
Location :Town Hall, Udaipur												
January	12.9	16.7	22.5	4	59.8	79.0	89.1	4	180	288	424	8
February	11.6	29.0	70.5	8	59.7	82.1	117.5	8	252	318	359	8
March	13.5	20.8	28.8	8	28.9	50.0	81.6	8	158	243	308	8
April	13.1	19.5	30.8	9	24.3	38.2	72.4	9	131	208	293	9
May	8.8	17.1	28.3	9	12.2	27.1	43.7	9	120	201	369	9
June	11.2	12.6	13.6	4	14.4	14.9	15.5	4	77	130	186	8
July	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	67	186	362	9
August	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	85	156	240	8
September	N.A.	N.A.	N.A.	0	N.A.	61.8	77.4	6	84	134	207	8
October	N.A.	N.A.	N.A.	0	N.A.	31.3	54.5	8	139	286	503	8
November	N.A.	N.A.	N.A.	0	N.A.	49.7	64.7	8	131	191	310	8
December	N.A.	N.A.	N.A.	0	N.A.	59.0	84.2	9	97	151	201	9
Annual	8.8	20.1	70.5	42	12.2	48.9	117.5	73	67	207	503	100
Location :DIC, Udaipur												
January	14.9	18.3	24.3	3	45.2	51.0	59.7	3	335	614	795	8
February	14.6	25.1	41.0	8	31.0	70.7	114.7	8	500	598	866	8
March	14.4	24.2	31.4	9	23.5	52.2	74.3	9	257	434	826	9
April	12.6	19.0	27.7	9	24.7	41.2	59.6	9	265	392	590	9
May	10.8	14.6	25.3	9	12.0	16.8	28.3	9	125	318	707	9
June	11.9	13.3	15.5	4	15.9	17.1	18.2	4	108	175	219	8
July	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	82	152	239	9
August	N.A	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	122	195	393	9
September	N.A.	N.A.	N.A.	0	N.A.	46.4	76.4	5	100	253	442	8
October	N.A.	N.A.	N.A.	0	N.A.	29.2	45.6	8	249	385	662	9
November	N.A.	N.A.	N.A.	0	N.A.	41.0	82.2	9	184	408	768	9
December	N.A.	N.A.	N.A.	0	N.A.	65.1	76.0	8	258	400	758	9
Annual	10.8	19.7	41.0	42	12.0	43.5	114.7	72	82	358	866	104

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

3.17 TAMIL NADU

3.17.1 AIR QUALITY MONITORING NETWORK :

CITY(IES)	Industrial	Residential	Sensitive	Total
Coimbatore	1	2	0	3
Madras	3	2	0	5
Tuticorin	0	3	0	3

3.17.2 AMBIENT AIR QUALITY STATUS

Annual Mean Concentration Range (µg/m3)						
	Industrial (I)	SO_2 & NO_2	SPM	Residential (R)	SO_2 & NO_2	SPM
Low	*L*	0-40	0-180	L	0-30	0-70
Moderate	*M*	40-80	180-360	M	30-60	70-140
High	*H*	80-120	360-540	H	60-90	140-210
Critical	*C*	>120	>540	C	>90	>210

		Annual Mean Concentration (µg/m3)		
City / Location	Area Class	SO_2	NO_2	SPM
CITY : Coimbatore				
Collectors Office	Residential	L	L	M
SIDCO Office	Industrial	L	L	L
Sai Baba Colony	Residential	L	L	M
CITY : Madras				
General Hospital	Residential	L	L	M
Santhome	Residential	L	L	L
Kathivakkam	Industrial	L	L	L
Manali Police Station	Industrial	L	L	L
Thiruvottiyur	Industrial	L	L	L
CITY : Tuticorin				
AVM Building	Residential	L	L	M
Fisheries College	Residential	L	L	L
Chemical Research Centre	Residential	L	L	M

3.17.3 AIR QUALITY STATISTICS : The values of monthly and annual minimum, mean and maximum alongwith the number of monitored days for 16 or more hours of three monitored parameters viz. SO_2, NO_2, and SPM are presented in Table 3.17.1.

Table 3.17.1 AMBIENT AIR QUALITY STATISTICS - 1997
STATE : Tamil Nadu

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location :Kathivakkam, Madras												
January	6.5	56.3	175.8	7	3.5	5.3	8.2	7	22	103	172	7
February	7.7	18.5	49.1	5	3.0	3.6	5.0	6	117	164	234	7
March	10.8	25.3	55.9	9	3.0	5.7	9.7	9	118	200	314	9
April	6.3	26.6	46.9	2	3.0	3.7	4.5	6	108	162	221	6
May	N.A.	N.A.	N.A.	0	N.A.	9.3	12.3	2	100	138	181	4
June	10.4	13.1	16.4	4	6.2	20.2	55.3	8	44	139	222	9
July	6.4	10.8	14.3	5	13.4	27.9	46.8	6	37	210	426	9
August	32.8	42.8	51.3	4	9.6	44.9	62.0	7	75	190	483	7
September	6.5	14.6	21.8	6	6.5	25.2	44.8	7	118	173	240	8
October	20.7	46.3	73.8	7	11.5	20.7	35.6	7	52	99	157	7
November	6.5	10.6	13.9	5	6.6	8.3	10.5	5	30	50	72	7
December	6.3	8.0	11.8	5	4.3	13.1	26.6	6	10	56	122	7
Annual	6.3	26.3	175.8	59	3.0	16.2	62.0	76	10	143	483	87
Location :Manali Police Station, Madras												
January	9.4	55.5	128.2	5	4.5	8.4	11.6	5	33	108	196	6
February	7.8	12.7	15.2	6	3.4	5.8	10.7	8	76	93	122	8
March	14.1	24.1	40.5	7	3.0	3.6	4.5	7	50	96	161	7
April	6.0	10.4	14.7	2	3.0	3.6	6.0	6	29	66	98	6
May	6.0	6.0	6.0	2	3.0	5.3	16.8	7	64	124	203	7
June	6.1	8.4	12.3	4	6.0	27.5	59.3	6	71	162	397	6
July	6.0	7.2	9.0	4	3.0	12.2	22.8	7	45	89	132	9
August	6 0	11.7	18 6	4	15.0	39.8	102.9	8	55	92	122	8
September	9.3	19.1	29.2	6	7.5	13.5	20.2	7	50	69	108	8
October	22.9	30.7	37.7	3	8.6	17.4	30.1	5	41	56	77	7
November	10 0	16.3	31.5	6	6.2	14.4	22.3	6	25	54	88	9
December	6.0	14.7	34.7	6	7.3	14.5	24.7	6	25	75	139	7
Annual	6 0	19.2	128 2	55	3.0	14.0	102.9	78	25	89	397	88
Location :Thiruvottiyur, Madras												
January	6.0	40.0	178.6	7	4.7	7.8	13.6	7	77	150	278	7
February	6.0	8.0	11.3	5	3.6	7.6	11.6	5	79	146	275	6
March	7.6	30.8	73.7	3	4.2	5.9	9.3	6	40	128	200	6

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.17.1 Contd..

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
April	6.0	6.0	6.0	1	3.0	3.4	4.1	6	36	59	73	6
May	6.0	7.2	11.5	8	3.0	3.1	3.5	9	39	112	220	9
June	6.2	11.6	27.0	6	3.0	16.9	47.3	7	68	139	169	7
July	6.0	6.2	6.5	5	3.0	15.3	27.2	8	77	98	118	8
August	6.0	6.0	6.0	3	12.7	22.5	29.8	8	79	128	165	8
September	12.6	28.7	67.3	5	15.0	16.8	19.0	5	41	94	150	7
October	11.5	23.7	37.0	7	12.5	22.2	30.5	8	44	70	110	9
November	6.0	8.6	12.1	6	3.7	10.4	27.0	7	38	60	101	7
December	6.0	6.9	8.3	8	3.9	5.3	8.4	8	19	42	60	9
Annual	6 0	15.8	178.6	64	3.0	11.6	47.3	84	19	100	278	89
Location :Santhome, Madras												
January	6.0	9.5	21.7	7	4.5	14.1	28.3	7	52	78	93	4
February	6.0	9.4	28.5	7	3.3	10.4	18.7	7	39	69	107	3
March	6.0	6.0	6.3	8	3.8	9.4	24.8	8	69	85	99	4
April	6.0	6.6	9.7	8	3.0	7.3	13.8	8	47	55	75	4
May	6.0	6.2	6.5	8	3.0	7.7	23.2	8	60	75	101	4
June	6.0	6.9	10.3	7	8.8	12.2	21.8	7	50	53	59	4
July	6 0	7.1	11.8	7	3.0	8.6	18.7	7	41	63	93	4
August	6.2	8.1	10.3	8	3.5	10.4	25.8	8	31	47	59	4
September	6.2	9.0	15.3	7	3.7	11.6	22.7	7	32	66	133	3
October	6.0	7.0	8.3	4	8.8	21.5	37.7	4	52	233	414	2
November	6.0	7.7	16.5	8	3.0	9.1	37.7	8	18	33	41	4
December	6.0	30.2	72.2	5	3.0	13.9	33.8	5	19	31	54	3
Annual	6.0	8.9	72.2	84	3.0	10.8	37.7	84	18	68	414	43
Location :General Hospital, Madras												
January	6 0	12.2	29.7	8	6.0	23.2	35.8	8	59	97	136	4
February	6.0	10.3	33.5	8	4.8	17.3	39.0	8	76	103	132	4
March	6 0	7.3	10.2	8	5.2	9.6	23.3	8	106	113	121	4
April	6.0	7.2	11.8	7	3.3	6.5	12.8	7	65	93	128	3
May	6.0	7.2	10.8	8	3.0	8.6	19.8	8	42	75	99	4
June	6 0	9.6	27.3	8	5.0	12.2	21.3	8	95	141	188	4
July	6.0	6.2	7.0	7	3.0	9.9	22.3	7	118	153	201	3
August	6.0	7.4	14.4	8	3.0	8.1	19.8	8	58	133	167	4
September	6.3	7.5	9.8	7	3.0	12.0	25.8	7	82	165	245	4

Note:N.A.-Data Not Available Inadequate, Units in µg/m^3, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.17.1 Contd..

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
October	6.0	8.2	12.5	4	8.5	22.8	50.8	4	132	138	143	2
November	6.0	7.9	21.3	8	3.0	11.8	66.3	8	154	259	542	4
December	6.0	26.0	76.2	6	3.0	13.2	27.7	6	44	125	194	3
Annual	6.0	9.5	76.2	87	3.0	12.6	66.3	87	42	133	542	43
Location :AVM Building, Tuticorin												
January	6.8	9.6	12.8	5	8.4	12.9	16.6	7	47	83	109	8
February	N.A.	N.A.	N.A.	0	N.A.	12.8	16.3	6	45	97	140	7
March	9.8	16.0	22.2	2	10.3	13.2	18.8	7	49	90	158	7
April	7.6	10.5	13.4	2	12.4	13.6	14.4	7	52	89	150	8
May	7.8	15.5	26.1	5	11.6	16.8	38.3	7	79	139	232	8
June	10.3	10.3	10.3	1	12.2	18.3	27.8	3	183	219	259	6
July	N.A.	N.A.	N.A.	0	N.A.	9.7	15.0	6	73	134	168	6
August	10.8	10.8	10.8	1	8.5	15.1	26.1	8	51	118	199	8
September	9.8	13.4	16.5	4	13.5	19.2	25.0	8	94	161	321	8
October	8.8	8.8	8.8	1	14.4	21.0	41.3	5	78	121	181	7
November	N.A.	N.A.	N.A.	0	N.A.	16.2	20.3	5	20	55	87	6
December	N.A.	N.A.	N.A.	0	N.A.	19.0	26.6	6	39	81	157	6
Annual	6.8	12.5	26.1	21	6.7	15.5	41.3	75	20	115	321	85
Location :Fisheries College, Tuticorin												
January	7.4	12.6	22.8	6	11.0	17.7	26.2	6	20	40	83	7
February	6.5	13.0	24.3	7	13.6	20.8	29.7	7	43	68	100	8
March	6.5	14.4	23.0	8	11.4	16.2	22.3	8	19	34	52	8
April	14.7	17.0	23.9	7	15.3	22.1	37.0	7	26	71	119	7
May	7.4	13.2	19.3	6	17.8	28.9	48.8	7	37	66	149	8
June	9.5	15.2	20.8	6	15.6	24.7	42.3	8	27	39	53	8
July	8.5	11.2	14.0	5	10.0	22.9	71.2	8	16	33	54	8
August	10.3	12.5	18.2	5	6.5	14.0	20.6	8	18	29	49	8
September	8.8	17.5	23.8	6	14.7	24.3	35.2	8	17	28	54	9
October	14.8	21.6	30.3	3	17.3	23.5	30.0	6	19	29	52	7
November	12.8	19.0	30.0	6	14.3	17.7	21.7	7	13	29	44	7
December	13.6	18.4	22.6	5	15.7	22.2	48.0	6	17	28	45	7
Annual	6.5	15.2	30.3	70	6.5	21.2	71.2	86	13	41	149	92

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.17.1 Contd..

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location :Chemical Research Centre, Tuticorin												
January	8.4	12.9	24.3	6	8.5	15.4	23.5	6	20	30	35	6
February	8.5	23.4	77.6	6	8.4	13.3	20.0	7	35	59	92	7
March	10.8	16.8	30.7	7	12.9	14.8	21.0	7	28	38	45	7
April	8.3	12.9	16.9	6	13.4	15.7	17.4	6	19	57	82	7
May	10.8	14.3	17.7	2	16.2	16.4	16.5	2	49	56	62	2
June	8.0	17.5	21.4	4	14.3	19.3	26.8	6	28	50	97	6
July	6.5	10.9	14.5	5	9.2	15.1	20.7	7	12	21	41	7
August	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	19	19	19	1
September	12.2	16.3	21.8	3	10.7	17.6	24.0	6	16	39	67	7
October	8.7	16.2	21.7	4	16.0	20.2	31.0	6	16	32	49	8
November	11.6	17.9	22.5	8	11.6	18.4	29.0	9	13	23	35	9
December	8.3	14.8	23.5	7	13.2	17.5	22.8	9	17	25	36	9
Annual	6.5	15.9	77.6	58	8.4	16.7	31.0	71	12	37	97	76
Location :SIDCO Office, Coimbatore												
January	6.0	7.3	8.5	2	4.4	7.8	13.5	6	46	101	176	7
February	N.A.	N.A.	N.A.	0	N.A.	5.6	7.1	4	62	112	202	7
March	6.0	6.0	6.0	1	3.2	4.0	5.1	3	110	185	264	5
April	N.A.	N.A.	N.A.	0	N.A.	4.5	5.2	4	78	94	143	5
May	6.0	6.0	6.0	1	3.2	4.5	5.2	7	62	118	209	8
June	N.A.	N.A.	N.A.	0	N.A.	10.0	11.3	6	44	140	332	6
July	6.0	6.8	9.3	7	3.8	14.5	25.2	9	50	107	213	9
August	6.0	6.1	6.5	7	15.5	23.9	33.8	7	128	184	257	7
September	8.6	12.5	17.4	5	20.7	23.2	29.0	5	105	192	283	5
October	7.1	8.6	10.5	5	17.3	22.4	27.4	5	68	159	290	8
November	11.4	13.9	18.6	8	16.9	24.7	31.9	8	102	172	344	8
December	8.5	10.6	16.0	6	10.1	14.8	21.3	6	93	151	196	6
Annual	6.0	9.5	18.6	42	3.2	14.3	33.8	70	44	141	344	81
Location :Distt. Collector's Office, Coimbatore												
January	N.A.	N.A.	N.A.	0	N.A.	5.7	9.6	5	134	159	184	5
February	N.A.	N.A.	N.A.	0	N.A.	5.2	8.5	6	119	144	211	6
March	N.A.	N.A.	N.A.	0	N.A.	4.2	4.9	6	69	90	108	6
April	6.0	6.0	6.0	1	3.2	3.9	4.4	8	37	84	118	8
May	N.A.	N.A.	N.A.	0	N.A.	3.7	4.8	6	53	99	159	7

Note:N.A.-Data Not Available/Inadequate, Units in µg/m³, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.17.1 Contd..

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
June	6.0	6.0	6.0	1	6.0	8.5	9.9	8	40	65	96	8
July	6.0	6.2	6.9	5	4.1	13.4	21.7	9	43	77	183	9
August	6.0	6.3	6.8	5	17.4	21.3	24.9	7	60	120	226	8
September	8.2	11.3	13.9	7	19.9	22.2	26.0	7	71	151	220	7
October	6.7	8.0	10.4	6	15.9	19.0	21.8	6	80	170	273	8
November	6.6	9.7	13.1	7	11.8	17.9	25.4	7	46	82	116	8
December	9.3	12.4	15.0	7	12.9	22.7	32.3	7	54	75	94	7
Annual	6.0	9.1	15.0	39	3.0	12.5	32.3	82	37	107	273	87
Location :Sai Baba Colony, Coimbatore												
January	N.A.	N.A.	N.A.	0	N.A.	4.5	10.3	6	71	97	115	6
February	N.A.	N.A.	N.A.	0	N.A.	3.4	4.1	3	57	93	124	5
March	N.A	N.A.	N.A.	0	N.A.	4.0	5.8	7	22	80	131	7
April	N.A.	N.A.	N.A.	0	N.A.	3.1	3.3	6	19	48	59	6
May	N.A.	N.A.	N.A.	0	N.A.	3.0	3.0	3	27	41	54	5
June	N.A.	N.A.	N.A.	0	N.A.	8.6	10.3	8	26	45	60	9
July	6.0	6.1	6.1	2	12.0	16.8	22.0	7	22	91	310	9
August	N.A.	N.A.	N.A.	0	N.A.	27.3	43.3	6	39	118	207	6
September	N.A	N.A.	N.A.	0	N.A.	18.2	25.4	7	82	134	180	8
October	N A.	N.A.	N.A.	0	N.A.	22.3	32.7	4	26	86	292	7
November	N.A.	N.A.	N.A.	0	N.A.	16.3	18.9	4	33	61	89	8
December	N.A.	N.A.	N.A.	0	N.A.	14.9	27.0	5	20	92	150	7
Annual	6.0	6.1	6.1	2	3.0	12.1	43.3	66	19	82	310	83

Note:N.A.-Data Not Available/Inadequate, Units in µg/m^3, N-Number of observation with >=16 hours monitoring days

3.18 UTTAR PRADESH

3.18.1 AIR QUALITY MONITORING NETWORK :

CITY(IES)	Industrial	Residential	Sensitive	Total
Agra	1	1	1	3
Anpara	2	0	0	2
Dehradoon	1	1	0	2
Gajroula	1	1	0	2
Kanpur	2	4	0	6
Lucknow	2	1	0	3
Varanasi	1	0	0	1
Ghaziabad	2	0	0	2

3.18.2 AMBIENT AIR QUALITY STATUS

Annual Mean Concentration Range (µg/m3)						
	Industrial (I)	SO_2 & NO_2	SPM	Residential (R)	SO_2 & NO_2	SPM
Low	*L*	0-40	0-180	L	0-30	0-70
Moderate	*M*	40-80	180-360	M	30-60	70-140
High	*H*	80-120	360-540	H	60-90	140-210
Critical	*C*	>120	>540	C	>90	>210

		Annual Mean Concentration (µg/m3)		
City / Location	Area Class	SO_2	NO_2	SPM
CITY : Agra				
Tajmahal	Sensitive	M	M	C
Regional Office, Bodala	Residential	L	L	C
Nunhai	Industrial	L	L	H
CITY : Anpara				
Anpara Colony	Industrial	M	M	M
Renusagar Colony	Industrial	M	M	M
CITY : Dehradoon				
Raipur Road	Industrial	L	L	M

Contd...

Table 3.18.2 (Contd...)

		Annual Mean Concentration (µg/m3)		
City / Location	**Area Class**	**SO_2**	**NO_2**	**SPM**
CITY : Gajroula				
Indira Chowk	Residential	M	-	C
Raunaq Auto Ltd.	Industrial	L	-	M
CITY : Kanpur				
M/s Associated Chem. Pvt. Ltd., Fazalgang	Industrial	L	L	H
Deputy Ka Parao	Residential	L	L	C
Agricultrure University	Residential	L	L	H
Head Post Office	Residential	L	L	C
Lajpat Nagar	Industrial	L	L	M
F. & Training Centre	Residential	L	L	C
CITY : Lucknow				
Kapoor Hotel, Hazratganj	Residential	M	M	C
Talkatora	Industrial	L	L	M
Goyal Market	Residential	L	M	C
CITY : Ghaziabad				
M/s Dinsons India Pvt. Ltd., Noida	Industrial	-	-	M
M/s Ferrolite Jointing Pvt. Ltd	Industrial	-	-	M
M/s Atlas Cycles, Sub Ind. Area	Industrial	-	-	M

3.18.3 AIR QUALITY STATISTICS : The values of monthly and annual minimum, mean and maximum alongwith the number of monitored days for 16 or more hours of three monitored parameters viz. SO_2, NO_2, and SPM are presented in Table 3.18.1.

Table 3.18.1 AMBIENT AIR QUALITY STATISTICS - 1997
STATE : Uttar Pradesh

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location :Taj Mahal, Agra												
January	17.8	21.1	25.3	14	16.6	18.6	21.3	14	318	650	869	17
February	11.8	16.3	19.2	23	10.3	15.3	19.5	23	340	630	998	23
March	8.2	13.8	18.2	21	7.5	13.7	19.0	21	176	321	573	22
April	8.7	13.4	17.2	21	6.8	11.9	16.8	21	139	356	510	22
May	7.8	11.7	14.7	21	6.5	10.3	13.2	21	182	355	667	25
June	9.0	11.2	15.4	15	6.8	9.6	12.2	15	183	321	489	20
July	7.8	11.1	16.2	22	5.0	8.9	13.4	22	218	314	437	25
August	6.7	9.4	12.6	14	5.0	8.2	11.0	14	116	205	312	20
September	7.3	10.7	13.5	25	5.3	8.7	12.8	25	64	234	317	25
October	9.3	13.3	17.5	20	6.3	11.7	15.6	20	183	301	387	21
November	10.5	15.8	19.2	22	7.5	13.4	17.3	22	233	350	448	23
December	14.6	17.9	25.8	18	10.0	15.1	18.8	18	251	581	959	22
Annual	6.7	13.7	25.8	236	5.0	12.0	21.3	236	64	380	998	265
Location :Regional Office, Bodla, Agra												
January	17.3	21.5	23.8	8	14.6	18.3	21.8	8	380	490	612	9
February	10.8	14.3	17.5	7	10.2	13.9	17.2	7	292	495	653	8
March	9.7	12.2	14.0	6	9.5	11.8	13.6	6	352	466	793	6
April	10.3	11.8	13.6	8	8.5	10.7	12.8	8	307	476	591	8
May	9.3	11.7	14.2	8	6.5	9.7	12.5	8	277	419	928	9
June	9.0	10.6	12.2	7	7.2	8.6	10.5	7	336	401	472	7
July	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	153	184	216	6
August	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	96	115	151	6
September	6.5	7.2	7.8	3	4.0	5.8	7.0	3	116	159	210	9
October	9.0	9.9	10.5	3	7.3	8.8	9.8	3	138	175	211	6
November	12.0	13.6	14.8	4	11.0	12.6	14.3	4	199	261	292	7
December	11.8	12.8	13.8	2	12.3	12.4	12.5	2	102	268	349	8
Annual	6.5	13.2	23.8	56	4.0	11.7	21.8	56	96	335	928	89
Location :Nunhai, Agra												
January	18.7	24.8	33.0	8	16.0	22.2	29.3	8	489	855	1222	8
February	13.5	14.4	15.2	2	13.0	13.5	14.0	2	414	556	709	6
March	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	221	423	719	6
April	13.6	16.3	19.5	6	13.6	16.2	18.7	6	450	666	1071	7

Note:N.A.-Data Not Available/Inadequate, Units in µg/m^3, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.18.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
May	15.2	20.1	24.8	7	12.8	18.2	23.5	7	279	616	802	8
June	17.7	22.5	26.2	5	14.8	21.4	26.0	5	232	472	646	7
July	21.3	21.3	21.3	1	16.5	16.5	16.5	1	178	255	350	8
August	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	169	192	214	5
September	13.3	13.6	14.0	3	12.8	13.5	14.3	3	128	225	317	9
October	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	216	267	302	4
November	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	282	367	484	7
December	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	590	870	1119	7
Annual	13.3	20.0	33.0	32	12.8	18.5	29.3	32	128	492	1222	82

Location :Anpara Colony, Anpara

MONTH	SO2 MIN.	SO2 MEAN	SO2 MAX.	n	NO2 MIN.	NO2 MEAN	NO2 MAX.	n	SPM MIN.	SPM MEAN	SPM MAX.	n
January	64.1	73.9	80.6	9	57.5	68.2	73.3	9	351	377	418	9
February	44.7	56.8	74.6	8	43.2	54.0	68.1	8	306	355	396	8
March	50.7	56.5	63.2	8	50.7	56.9	65.4	8	367	395	421	8
April	55.1	59.5	65.4	8	50.5	55.5	60.9	8	201	271	415	8
May	48.2	56.1	61.0	8	48.1	54.8	59.6	8	217	272	366	8
June	37.6	45.0	61.9	8	40.3	46.7	56.4	8	247	277	305	8
July	38.2	44.4	50.6	9	42.6	47.0	52.8	9	189	275	439	9
August	25.7	39.4	51.7	8	32.3	41.9	52.7	8	105	170	200	9
September	36.1	44.0	52.6	9	36.9	49.3	56.3	9	142	193	233	9
October	46.0	51.9	62.2	8	48.1	54.6	63.7	8	212	248	318	8
November	48.2	55.4	65.7	8	54.5	60.1	67.4	8	221	290	395	8
December	53.3	64.7	71.8	9	51.5	63.5	70.1	9	150	237	326	9
Annual	25.7	54.1	80.6	100	32.3	54.5	73.3	100	105	279	439	101

Location :Renusagar Colony, Anpara

MONTH	SO2 MIN.	SO2 MEAN	SO2 MAX.	n	NO2 MIN.	NO2 MEAN	NO2 MAX.	n	SPM MIN.	SPM MEAN	SPM MAX.	n
January	65.7	77.8	83.6	9	63.7	71.0	74.4	9	346	386	481	9
February	41.6	62.8	76.8	8	46.7	61.3	70.1	8	312	403	519	8
March	52.8	64.6	73.0	8	51.9	62.8	69.2	8	219	309	472	8
April	52.8	59.2	66.6	8	51.9	57.3	62.6	8	227	287	319	8
May	46.0	54.7	60.2	8	46.2	53.1	57.1	8	175	288	429	8
June	38.5	43.5	48.4	8	41.6	48.2	57.5	8	259	362	520	8
July	36.9	45.2	51.8	9	38.2	46.9	51.9	9	164	216	309	9
August	32.5	35.9	44.8	8	35.1	38.7	46.2	8	97	153	245	9
September	40.5	47.5	57.6	9	38.8	50.2	59.9	9	111	168	225	9
October	35.9	49.6	54.1	8	38.9	51.9	57.5	8	148	208	245	8

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.18.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
November	52.8	70.9	151.7	8	56.4	61.8	66.3	8	202	245	280	8
December	49.5	62.9	73.0	9	53.4	62.9	69.8	9	184	235	356	9
Annual	32.5	56.3	151.7	100	35.1	55.6	74.4	100	97	270	520	101

Location :M/S Associated Chem Pvt Ltd, Fazalganj, Kanpur

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
January	16.1	19.2	21.7	4	12.6	17.7	20.8	4	400	522	610	4
February	15.0	19.1	22.3	5	12.6	16.4	18.6	5	199	429	605	7
March	19.0	21.4	23.4	3	12.4	16.1	21.2	4	322	487	638	4
April	13.8	17.9	21.0	5	9.1	15.7	18.6	5	389	561	744	6
May	14.0	19.0	23.6	6	9.4	14.3	19.9	6	382	483	643	8
June	17.7	21.1	24.4	2	13.9	14.8	15.6	2	157	365	589	4
July	22.2	22.2	22.2	1	20.8	20.8	20.8	1	508	508	508	1
Annual	13.8	19.4	24.4	26	9.1	16.0	21.2	27	157	478	744	34

Location :Deputy Ka Parao, Kanpur

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
January	19.5	20.7	22.3	7	12.9	16.4	18.2	7	314	491	583	7
February	15.1	18.7	21.0	5	12.4	16.6	19.2	5	406	508	612	5
March	16.5	19.4	24.4	4	14.1	17.9	19.3	4	293	456	667	5
April	17.9	19.6	21.7	8	15.3	18.1	19.9	8	458	616	752	8
May	14.9	19.4	21.3	5	8.8	15.4	18.8	5	292	484	662	8
June	18.0	20.4	22.5	6	14.5	18.0	21.1	6	440	564	704	6
July	19.8	21.1	22.3	5	17.3	19.0	21.1	5	345	503	708	6
August	14.7	19.7	24.1	8	11.9	16.9	21.2	8	336	525	708	8
September	14.7	20.6	24.4	7	12.4	16.7	19.3	7	279	503	628	9
October	13.8	15.7	18.2	5	9.0	13.9	18.9	5	76	406	735	7
November	13.2	16.8	18.5	4	11.1	16.1	19.3	4	263	349	440	4
December	11.1	17.5	20.7	8	10.9	16.5	19.1	8	345	433	521	8
Annual	11.1	19.2	24.4	72	8.8	16.8	21.2	72	76	492	752	81

Location : Agriculture University, Kanpur

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
January	6.8	7.7	9.7	4	26.2	26.7	27.8	4	137	218	298	2
February	6.0	6.0	6.0	5	13.5	14.9	17.4	5	187	238	339	3
March	6.0	6.1	6.3	6	12.6	13.7	14.8	6	198	274	312	3
April	6.0	6.3	6.5	6	7.7	11 2	13.3	6	195	282	371	4
May	6.5	7.6	8.2	5	9.3	10.9	12.0	5	129	202	243	4
June	6.0	6.1	6.5	6	13.5	17.9	26.0	6	72	158	201	5

Note·N.A -Data Not Available/Inadequate, Units in µg/m³, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.18.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
July	6.0	6.0	6.0	6	6.5	7.9	9.0	6	47	72	93	4
August	6.0	6.0	6.0	5	8.2	10.0	12.2	5	61	96	130	3
September	6.0	6.3	6.7	6	10.8	12.7	14.8	6	35	93	162	4
October	7.0	8.2	9.8	5	14.5	17.4	20.3	5	98	238	394	3
November	8.0	10.4	11.5	6	11.5	13.9	14.8	6	100	189	257	4
December	8.7	10.2	11.0	5	12.2	15.6	19.5	5	112	218	283	3
Annual	6.0	7.2	11.5	65	6.5	14.1	27.8	65	35	185	394	42

Location : Head Post Office, Kanpur

MONTH	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
January	10.3	11.1	11.5	4	30.5	33.8	37.8	4	201	376	604	3
February	6.2	7.5	8.7	5	24.3	26.5	29.3	5	241	275	308	3
March	7.0	8.6	10.5	5	23.2	26.2	30.0	5	189	358	521	5
April	6.0	6.0	6.0	6	13.2	17.6	20.4	6	239	328	430	4
May	6.0	6.1	6.2	6	15.0	20.6	29.8	6	219	471	1385	5
June	7.7	9.3	12.0	5	25.7	29.5	32.4	5	181	297	563	4
July	6.0	8.1	10.2	6	9.5	19.6	26.7	6	58	159	317	6
August	6.0	6.9	9.7	6	9.0	16.0	22.2	6	118	170	244	4
September	7.0	9.6	16.5	6	18.0	22.3	26.7	6	65	138	211	4
October	14.2	15.4	16.0	5	26.3	28.7	30.0	5	94	156	282	4
November	14.2	15.8	17.0	6	27.3	30.4	33.0	6	293	362	508	5
December	11.0	13.2	14.5	7	23.0	24.5	28.7	7	163	209	277	5
Annual	6.0	9.8	17.0	67	9.0	24.2	37.8	67	58	274	1385	52

Location : Lajpat Nagar, Kanpur

MONTH	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
January	11.7	13.5	16.8	6	38.0	46.8	55.3	6	321	474	599	4
February	6.3	7.0	8.0	6	20.0	24.4	27.8	6	377	420	452	3
March	8.2	13.4	23.2	6	25.8	30.4	35.0	6	288	423	554	4
April	6.0	6.4	7.5	6	16.2	21.5	28.7	6	313	453	594	4
May	6.7	8.2	9.8	6	18.2	21.4	24.5	6	248	275	316	4
June	7.8	9.3	12.8	7	24.3	28.7	33.7	7	160	223	285	5
July	6.3	8.0	12.5	6	17.8	21.4	28.0	6	102	173	224	4
August	6.0	8 1	11.8	5	11.5	23.2	37.8	5	145	153	173	4
September	6.2	11.4	17.7	6	22.2	25.7	29.8	6	63	137	198	4
October	14.3	18.6	20.7	5	32.2	36.2	40.2	5	205	275	304	4
November	16 0	17.5	19.8	6	30.5	32.7	36.2	6	130	302	428	4

Note N.A.-Data Not Available/Inadequate, Units in µg/m³, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.18.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
December	14.2	15.6	17.0	6	25.0	28.4	33.2	6	210	331	416	4
Annual	6.0	11.3	23.2	71	11.5	28.4	55.3	71	63	299	599	48
Location : Forest & Training Centre, Kidwai Nagar, Kanpur												
January	19.7	21.5	23.9	6	12.8	17.1	20.3	6	447	539	622	7
February	17.8	19.5	21.4	7	13.7	16.0	19.6	7	211	465	611	8
March	14.0	17.2	19.2	6	12.0	14.9	17.7	6	193	461	595	8
April	15.2	17.3	19.5	6	12.7	15.3	17.2	6	339	544	596	7
May	16.9	20.7	25.9	8	13.3	17.2	19.3	8	555	619	707	8
June	14.2	18.9	21.6	6	10.0	14.9	18.1	6	297	466	557	9
July	15.4	19.0	23.5	7	14.2	17.0	21.6	7	284	496	636	8
August	15.5	17.6	19.6	6	13.1	15.1	16.4	6	481	555	670	6
September	13.6	17.3	20.5	4	10.7	13.3	16.1	4	360	464	532	4
October	8.4	13.6	19.0	6	7.7	13.4	20.5	6	162	369	603	6
November	7.5	14.4	19.1	8	6.6	13.8	17.4	8	256	469	622	8
December	10.1	13.7	16.3	5	8.3	12.2	17.5	5	313	413	543	5
Annual	7.5	17.7	25.9	75	6.6	15.2	21.6	75	162	492	707	84
Location : Kapoor Hotel, Hazratganj, Lucknow												
January	32.0	34.4	36.1	7	34.7	36.5	39.0	7	434	497	522	7
February	32.5	34.4	36.8	12	37.2	39.2	41.1	12	527	572	609	12
March	33.6	35.2	36.2	6	40.6	41.4	42.9	6	374	383	393	6
May	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	256	270	282	9
June	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	241	267	282	9
July	31.9	33.3	35.8	5	34.5	36.9	39.7	5	345	364	374	5
August	32.9	36.5	39.5	3	35.4	39.5	42.4	3	259	312	394	7
September	28.0	33.4	37.3	8	29.7	35.9	39.3	8	276	341	377	8
October	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	227	294	348	7
November	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	273	309	390	8
December	26.0	31.2	35.4	7	29.7	32.9	35.3	7	290	320	353	9
Annual	26.0	33.9	39.5	48	29 7	37.4	42.9	48	227	363	609	87
Location : Talkatora, Lucknow												
January	28.7	29.7	30.6	5	32.6	33.6	34.2	5	387	546	598	5
February	28.5	30.2	32.2	11	31.4	33.0	34.6	11	397	733	2339	11
March	29.0	30.2	30.9	6	32.0	32.7	33.2	6	535	548	571	6

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.18.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
May	33.8	35.0	36.4	6	35.1	38.4	40.4	6	334	361	382	8
June	30.7	33.9	35.2	5	33.5	38.4	47.2	5	257	350	378	6
July	31.8	33.8	36.1	8	34.3	37.5	40.0	8	355	373	386	8
August	33.5	35.8	37.6	7	36.3	39.5	43.4	7	358	376	407	7
September	31.4	34.6	37.7	9	33.4	36.4	39.2	9	301	352	384	9
October	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	294	333	366	7
November	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	255	337	420	7
December	25.8	29.6	33.1	6	30.9	33.6	35.9	6	313	354	374	8
Annual	25.8	32.6	37.7	63	30.9	35.8	47.2	63	255	431	2339	82
Location : Goyal Market, Mahanagar, Lucknow												
January	32.0	33.6	35.9	5	34.6	36.3	38.1	5	255	338	401	5
February	24.7	26.3	27.8	12	31.1	32.6	34.1	12	273	376	409	12
March	23.6	24.6	25.8	5	24.0	25.0	26.1	5	314	326	342	5
May	21.3	26.4	36.2	7	25.2	30.0	36.7	7	213	241	274	8
June	20.7	23.1	26.9	3	23.9	26.7	32.0	3	163	243	283	7
July	24.9	29.0	32.3	8	26.7	31.4	38.0	8	163	244	297	9
August	25.7	28.8	34.9	6	26.7	31.7	38.0	6	208	225	257	6
September	24.4	28.9	32.5	7	26.0	30.8	34.4	7	185	218	258	8
October	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	233	262	292	6
November	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	192	259	298	7
December	23.4	26.7	29.3	7	23.6	30.5	35.8	7	255	280	304	7
Annual	20.7	27.6	36.2	60	23.6	31.0	38.1	60	163	276	409	80
Location : Indira Chowk, Gajroula												
February	32.3	32.8	33.3	2	N.A.	N.A.	N.A.	0	90	193	370	5
April	32.5	35.5	39.0	5	N.A.	N.A.	N.A.	0	104	253	456	6
June	22.3	28.5	40.8	8	N.A.	N.A.	N.A.	0	135	288	423	8
July	N.A.	N A.	N.A.	0	N.A.	N.A.	N.A.	0	236	236	236	1
August	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	118	168	255	9
September	N.A.	N.A	N.A.	0	N.A.	N.A.	N.A	0	192	276	384	9
October	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	114	233	363	7
November	N A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	232	260	301	6
Annual	22.3	31.4	40.8	15	N.A.	N.A.	N.A.	0	90	239	456	51

Note: N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.18.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location : Raunaq Ltd., Gajroula												
January	23.7	28.0	36.7	5	N.A.	N.A.	N.A.	0	124	238	310	6
February	26.5	29.8	33.1	2	N.A.	N.A.	N.A.	0	144	219	294	2
July	19.0	21.1	22.0	4	N.A.	N.A.	N.A.	0	150	249	409	6
August	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	137	193	362	6
September	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	226	363	486	9
October	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	227	324	412	8
November	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	240	323	463	9
Annual	19.0	25.8	36.7	11	N.A.	N.A.	N.A.	0	124	289	486	46
January	12.4	15.1	17.5	7	12.2	19.3	24.6	7	317	427	640	7
February	12.7	18.3	21.3	5	13.4	17.1	22.2	5	84	399	544	8
March	15.6	20.0	25.8	7	13.8	19.1	24.3	7	322	485	746	7
April	8.3	16.3	25.9	6	12.5	16.8	21.3	6	164	331	477	7
May	11.2	20.5	28.4	9	13.4	19.5	30.1	9	197	380	482	9
June	12.1	17.4	27.2	7	16.0	20.4	23.1	7	146	289	498	8
July	10.1	17.2	25.0	6	12.3	19.6	24.6	6	103	242	407	8
August	8.4	12.8	18.9	6	13.1	18.9	27.8	6	115	192	294	8
September	8.3	16.0	23.0	8	9.3	17.0	27.6	8	99	247	381	9
October	9.1	15.9	22.9	8	9.2	18.1	24.3	8	197	283	408	8
November	14.5	18.3	22.8	8	12.1	17.9	25.0	8	116	299	382	9
December	8.2	14.1	18.4	9	4.7	12.3	21.2	9	196	290	397	9
Annual	8.2	16.9	28.4	86	4.7	17.9	30.1	86	84	318	746	97
Location :Raipur Road, Dehradun												
January	13.0	18.5	22.9	6	9.4	22.5	28.6	6	77	271	506	9
February	11.5	19.9	28.1	5	11.9	20.6	35 3	5	160	403	610	7
March	14.7	19.1	23.6	7	9.8	17.6	23.3	7	212	464	691	7
April	10.4	17.6	28.3	7	11.3	17.3	23.9	7	145	332	475	7
May	9.9	14.9	18.0	9	12.6	21.3	36.7	9	157	361	546	9
June	8.8	17.0	31.8	6	12.6	20.5	30.7	6	80	238	475	8
July	7.0	12.3	18.4	8	10.2	18.3	23.4	8	46	116	197	9
August	11.7	15.1	18.2	6	5.3	15.0	21.9	6	48	104	219	6

Note:N.A.-Data Not Available/Inadequate, Units in µg/m^3, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.18.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
September	17.5	20.4	26.7	8	14.3	20.0	28.3	8	38	141	424	9
October	12.3	15.5	21.3	8	10.0	18.1	23.8	8	107	107	107	1
November	10.9	15.5	20.0	8	13.5	18.8	22.9	8	64	341	521	8
December	12.9	15.2	17.5	7	11.5	16.6	20.8	7	106	262	647	8
Annual	7.0	16.6	31.8	85	5.3	18.9	36.7	85	38	271	691	88
Location : Bhojubir, Varanasi												
January	22.1	22.1	22.1	1	44.7	44.7	44.7	1	171	210	261	5
February	33.8	33.8	33.8	1	40.3	40.3	40.3	1	155	220	396	4
March	17.1	21.6	29.4	5	28.8	40.7	48.8	5	297	353	423	5
April	18.6	21.7	24.8	5	11.1	14.3	16.5	5	246	313	350	6
September	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	223	304	415	4
October	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	322	408	589	6
November	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	189	263	320	5
December	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	200	291	372	8
Annual	17.1	22.7	33.8	12	11.1	30.0	48.8	12	155	299	589	43
Location : M/s Ferrolite Jointing Pvt. Ltd., Ghaziabad												
January	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	141	236	385	7
February	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	180	200	220	7
March	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	190	199	205	4
April	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	256	286	306	6
May	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	250	276	301	4
June	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	235	255	275	5
July	N.A.	N.A	N.A.	0	N.A.	N.A.	N.A.	0	151	177	195	4
August	N.A	N.A.	N.A	0	N.A.	N.A.	N.A.	0	178	192	200	4
September	N.A.	N.A.	N.A.	0	N.A.	N.A	N.A.	0	201	211	226	3
October	N A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	216	230	256	6
November	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	200	207	215	3
December	N A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	206	258	351	10
Annual	N A	N.A.	N.A	0	N.A.	N.A.	N.A.	0	141	232	385	63
Location : M/s Dinsons India Pvt. Ltd., Noida												
January	N A	N.A	N.A.	0	N.A.	N.A.	N.A.	0	206	244	307	9
February	N A.	N.A.	N.A.	0	N A.	N.A.	N.A.	0	211	272	318	7

Note:N.A -Data Not Available/Inadequate, Units in µg/m³, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.18.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
March	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	224	250	267	6
April	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	168	200	233	7
May	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	165	224	264	9
June	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	173	218	284	8
July	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	189	212	241	8
August	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	168	202	267	14
September	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	154	238	335	13
October	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	125	189	245	11
November	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	69	225	489	8
December	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	122	185	243	10
Annual	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	0	69	219	489	110

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

3.19 WEST BENGAL

3.19.1 AIR QUALITY MONITORING NETWORK :

CITY(IES)	Industrial	Residential	Sensitive	Total
Calcutta	1	2	0	3
Haldia	2	0	0	2
Howrah	1	3	0	4

3.19.2 AMBIENT AIR QUALITY STATUS

Annual Mean Concentration Range (µg/m3)						
	Industrial (I)	SO_2 & NO_2	SPM	Residential (R)	SO_2 & NO_2	SPM
Low	*L*	0-40	0-180	L	0-30	0-70
Moderate	*M*	40-80	180-360	M	30-60	70-140
High	*H*	80-120	360-540	H	60-90	140-210
Critical	*C*	>120	>540	C	>90	>210

		Annual Mean Concentration (µg/m3)		
City / Location	Area Class	SO_2	NO_2	SPM
CITY : Haldia				
Super Market	Industrial	L	L	M
CITY : Howrah				
Municipal Corporation	Residential	C	C	C
Bandhaghat	Residential	M	M	M
N.P. House (Ghuseri)	Residential	M	M	C

3.19.3 AIR QUALITY STATISTICS : The values of monthly and annual minimum, mean and maximum alongwith the number of monitored days for 16 or more hours of three monitored parameters viz. SO_2, NO_2, and SPM are presented in Table 3.19.1.

Table 3.19.1 AMBIENT AIR QUALITY STATISTICS - 1997
STATE : West Bengal

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location : Howrah Municipal Corporation, Howrah												
January	95.0	211.3	380.3	9	187.8	263.6	514.7	9	316	553	928	9
February	34.6	164.8	340.2	7	80.4	188.5	301.9	7	310	439	593	8
Annual	34.6	191.0	380.3	16	80.4	230.8	514.7	16	310	499	928	17
January	25.5	98.6	217.0	9	81.5	198:6	397.2	9	275	365	603	10
February	12.7	88.0	309.3	6	34.8	98.1	142.2	6	219	319	490	7
Annual	12.7	94.3	309.3	15	34.8	158.4	397.2	15	219	346	603	17
January	86.4	191.7	387.3	7	68.4	199.5	377.4	8	179	427	886	9
February	110.9	155.5	257.1	6	68.6	130.6	198.0	7	216	348	586	7
Annual	86.4	175.0	387.3	13	68.4	167.4	377.4	15	179	392	886	16
Location : Bandhaghat, Howrah												
January	8.5	38.6	67.9	8	113.6	143.0	192.9	8	99	340	504	8
February	8.0	42.1	120.4	6	89.5	144.5	200.5	7	79	233	339	7
Annual	8.0	40.1	120.4	14	89.5	143.7	200.5	15	79	290	504	15
June	26.3	38.2	48.1	9	40.7	52.2	62.3	9	66	88	122	11
Annual	26.3	38.2	48.1	9	40.7	52.2	62.3	9	66	88	122	11
Location : Naskarpara Pump House, Ghuseri, Howrah												
February	15.5	36.5	72.3	3	20.0	32.8	45.3	3	236	413	499	4
March	21.0	46.1	69.2	5	39.7	55.4	70.7	5	192	479	609	5
April	6.0	6.0	6.0	2	5.0	24.4	43.7	2	123	198	269	4
May	6.8	15.6	20.8	4	17.2	28.5	46.0	4	329	408	500	3
June	6.0	12.6	22.3	6	11.2	27.7	45.2	6	197	339	503	4
July	6.0	13.6	24.7	4	15.7	25.8	30.3	4	278	367	425	3
August	6.0	12.2	23.2	3	12.0	20.8	31.3	3	N.A.	N.A.	N.A.	0
September	10.5	19.1	26.0	4	10.7	24.9	45.8	4	289	309	329	2
October	27.5	64.1	86.5	4	40.8	46.4	49.0	4	313	409	592	4
November	6.0	62.4	83.3	5	28.5	42.0	50.3	5	178	323	437	3
December	28.0	50.0	84.8	6	9.0	27.5	43.2	6	170	368	506	5
Annual	6.0	33.2	86.5	46	5.0	33.3	70.7	46	123	367	609	37

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Contd....

Table 3.19.1 Contd...

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location : Bator, Hawrah												
February	9.5	30.3	55.5	3	37.2	46.9	53.8	3	340	340	340	1
March	16.7	29.1	47.3	5	40.5	71.4	160.5	5	342	372	401	2
April	11.3	23.1	39.7	6	38.5	54.4	80.2	6	202	280	317	4
May	6.7	8.8	10.2	4	12.0	25.1	45.8	4	274	274	274	1
June	6.0	9.4	18.5	5	29.5	32.6	36.7	5	282	305	327	2
July	6.0	10.8	29.8	5	16.2	22.8	30.7	5	170	198	219	4
August	6.0	33.2	58.3	3	26.7	36.5	54.0	3	113	199	248	4
September	6.0	8.9	14.3	4	15.0	37.1	56.8	4	226	245	260	3
October	47.7	102.2	158.3	4	53.2	60.3	67.2	4	201	201	201	1
November	29.2	66.3	123.2	3	3.0	30.7	48.5	3	179	254	328	2
December	42.7	99.6	167.5	5	36.7	54.6	81.2	5	294	374	480	4
Annual	6.0	37.3	167.5	47	3.0	44.0	160.5	47	113	272	480	28
Location : Super Market, Haldia												
February	6.0	9.5	12.2	3	15.0	28.9	51.6	3	204	275	310	4
March	6.0	9.1	15.0	5	13.3	23.1	33.2	5	175	233	316	7
April	6.0	6.6	9.2	6	9.2	16.8	25.5	6	143	253	389	8
May	6.0	6.0	6.0	3	3.8	4.5	5.5	3	142	265	366	4
June	6.0	6.1	6.3	5	3.0	7.3	12.5	5	69	205	265	7
July	6.0	6.1	6.3	6	4.7	9.6	13.7	6	103	153	232	8
August	6.0	6.8	9.0	4	6.3	10.4	14.7	4	9	66	172	5
September	6.0	6.1	6.5	5	3.8	10.2	15.2	5	17	115	176	7
October	21.7	28.6	36.2	3	23.8	28.8	32.7	3	159	307	434	4
November	6.0	22.0	38.7	5	11.2	14.3	17.3	5	69	203	591	7
December	8.0	20.3	46.2	5	9.7	36.0	61.2	5	61	285	431	7
Annual	6.0	11.1	46.2	50	3.0	16.8	61.2	50	9	210	591	68

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

3.20 UNION TERRITORY - CHANDIGARH

3.20.1 AIR QUALITY MONITORING NETWORK :

CITY(IES)	Industrial	Residential	Sensitive	Total
Chandigarh	1	1	0	2

		Annual Mean Concentration (µg/m3)		
City / Location	**Area Class**	**SO_2**	**NO_2**	**SPM**
CITY : **Chandigarh**				
Modern Food Indl. Area	Industrial	L	L	M
Sector 17 C	Residential	L	L	C

3.20.3 AIR QUALITY STATISTICS : The values of monthly and annual minimum, mean and maximum alongwith the number of monitored days for 16 or more hours of three monitored parameters viz. SO_2, NO_2, and SPM are presented in Table 3.20.1.

Table 3.20.1 AMBIENT AIR QUALITY STATISTICS - 1997
UNION TERRITORY : Chandigarh

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location : Modern Foods Industrial Area												
January	6.0	7.0	9.8	8	3.3	7.2	13.8	8	241	285	324	8
February	6.0	6.8	8.3	8	3.7	5.1	6.5	8	177	402	1254	8
March	6.2	6.9	8.5	8	4.8	5.5	6.3	8	188	283	407	8
April	6.2	7.2	8.2	8	3.8	5.7	10.7	8	140	306	466	8
May	6.0	7.9	12.0	8	4.7	6.4	9.3	8	120	235	338	8
June	6.0	6.3	6.7	9	3.5	5.3	9.7	9	111	227	328	9
July	6.0	6.8	8.2	9	3.3	4.1	5.7	9	111	226	307	9
August	6.0	6.5	7.2	6	3.2	3.7	4.2	6	97	171	223	7
September	6.0	7.9	19.5	9	4.2	4.7	5.3	8	65	156	290	9
October	6.0	7.5	12.8	8	3.0	4.1	6.5	8	145	207	306	8
November	6.0	6.1	6.5	7	3.0	3.7	5.3	7	91	203	307	8
December	6.0	6.8	8.3	10	3.5	5.3	7.8	10	97	202	289	10
Annual	6.0	7.0	19.5	98	3.0	5.1	13.8	97	65	241	1254	100
Location :Sector-17 C												
January	6.0	6.2	6.7	8	3.0	7.8	14.7	8	138	272	378	8
February	6.0	6.4	7.8	8	3.0	3.8	4.7	8	158	301	493	8
March	6.0	6.1	6.7	8	3.0	3.9	4.8	8	170	310	489	8
April	6.0	6.1	6.5	8	3.5	4.1	5.8	8	145	211	362	8
May	6.0	6.4	8.3	9	3.2	4.6	8.7	9	158	232	304	9
June	6.0	6.1	6.6	8	3.0	4.0	9.3	8	53	155	436	8
July	6.0	6.0	6.2	10	3.0	3.9	6.0	9	109	230	307	10
August	6.0	6.1	6.2	4	3.2	3.7	4.5	4	40	157	250	7
September	6.0	6.0	6.0	8	3.0	3.9	5.5	8	90	163	338	8
October	6.0	6.2	6.8	5	3.2	3.9	4.8	5	102	163	286	6
November	6.0	6.1	6.5	7	3.0	3.6	4.5	7	98	160	307	8
December	6.0	6.4	7.8	7	4.5	6.1	8.2	7	94	163	271	8
Annual	6.0	6.2	8.3	90	3.0	4.5	14.7	89	40	212	493	96

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

3.21 UNION TERRITORY - PONDICHERRY

3.21.1 AIR QUALITY MONITORING NETWORK :

CITY(IES)	Industrial	Residential	Sensitive	Total
Pondichery	0	2	0	2

3.21.2 AMBIENT AIR QUALITY STATUS

Annual Mean Concentration Range (µg/m3)						
	Industrial (I)	SO_2 & NO_2	SPM	Residential (R)	SO_2 & NO_2	SPM
Low	*L*	0-40	0-180	L	0-30	0-70
Moderate	*M*	40-80	180-360	M	30-60	70-140
High	*H*	80-120	360-540	H	60-90	140-210
Critical	*C*	>120	>540	C	>90	>210

		Annual Mean Concentration (µg/m3)		
City / Location	**Area Class**	**SO_2**	**NO_2**	**SPM**
CITY : **Pondichery**				
Housing Board's Office (Sec.O)	Residential	M	M	C
FRENCH Institute	Residential	L	L	M

3.21.3 AIR QUALITY STATISTICS : The values of monthly and annual minimum, mean and maximum alongwith the number of monitored days for 16 or more hours of three monitored parameters viz. SO_2, NO_2, and SPM are presented in Table 3.21.1.

Table 3.21.1 AMBIENT AIR QUALITY STATISTICS - 1997
UNION TERRITORY : Pondichery

MONTH	SULPHUR DIOXIDE				NITROGEN DIOXIDE				SUSPENDED PARTICULATE MATTER			
	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n	MIN.	MEAN	MAX.	n
Location : Housing Board's Office, Sectional Office												
January	39.2	56.6	77.5	9	32.0	40.9	52.3	9	203	271	326	9
February	20.6	38.9	71.6	8	26.0	37.0	57.5	8	246	269	291	8
March	32.0	54.5	87.1	9	21.1	38.1	54.1	9	224	310	528	9
April	44.4	52.5	60.1	8	30.0	43.0	58.9	8	239	303	435	8
May	18.5	48.1	71.1	9	25.3	35.3	48.8	9	169	283	371	9
June	24.7	43.0	75.3	9	22.7	32.5	45.4	9	210	300	391	9
July	22.1	35.8	48.3	9	23.0	29.6	34.4	9	194	281	444	9
August	24.0	41 9	54.8	7	18.7	26.3	37.5	7	228	281	381	7
September	10.1	25.3	45.9	9	10.5	20.0	31.6	9	191	241	329	9
October	22.8	41.6	100.2	8	20.2	41.2	103.8	8	227	303	550	8
November	26.0	35.8	43.1	7	28.2	61.2	101.3	7	241	279	309	7
December	24.2	36.9	53.2	7	21.3	64.7	108.1	7	229	265	324	7
Annual	10.1	42.8	100.2	99	10.5	38.4	108.1	99	169	282	550	99
Location : French Institute												
January	13.5	18.0	34.0	9	17.5	20.8	28.4	9	104	130	155	9
February	15.1	16.9	19.8	8	15.0	18.6	21.5	8	120	139	152	8
March	9.4	15.8	21.6	9	12.2	18.5	28.0	9	101	125	147	9
April	14 9	18.9	24.5	9	20.6	25.1	32.7	9	82	115	138	9
May	19 5	24.4	28.7	9	29.7	32.5	37.7	9	89	117	167	9
June	13.9	17.6	20.1	8	19.8	21.2	23.0	8	114	133	148	8
July	19.0	26.1	34.4	9	20.2	30.9	38.8	9	111	128	143	9
August	18.8	22.8	27.8	8	30.8	32.7	37.4	8	97	124	144	8
September	14.9	21.3	33.1	7	22.9	30.8	40.5	7	104	125	155	6
October	14.6	19.6	22.2	9	24.3	27.4	29.4	9	85	122	154	9
November	20.1	21.8	26 2	8	26.2	29.0	39.6	8	96	122	159	8
December	16.6	17.7	19.2	8	21.3	27.0	34.5	8	85	115	127	8
Annual	9 4	20.1	34.4	101	12.2	26.1	40.5	101	82	124	167	100

Note:N.A.-Data Not Available/Inadequate, Units in $\mu g/m^3$, N-Number of observation with >=16 hours monitoring days

Chapter IV

MEASURES FOR PREVENTION AND CONTROL OF AIR POLLUTION

4.1 Measures to Control Industrial Pollution

- 17 categories of highly polluting industries haven been identified and their emissions are regularly monitored.
- 26 Problem Areas have been identified throughout the country and Action Plans have been prepared for them and are in various stages of implementation.
- Emission Standards have been prescribed under Environment (Protection) Act, 1986 for air polluting industries..
- Minimal national standards (MINAS) have been prescribed for highly polluting industries.
- The process of Environmental Auditing have been initiated in highly polluting industries. Submission of Environmental Statement has been made mandatory.
- CPCB has recommended to improve fuel quality and beneficiation of coal at pit-heat to reduce emission of pollutants.
- The industries are encouraged to use cleaner technology and Low Waste or No Waste Technology to reduce the waste generation and emission of pollutants into the atmosphere.
- Regular monitoring of ambient air quality levels throughout the country through 290 monitoring stations.
- National Ambient Air Quality Standards have been notified (1982, 1994).

4.2 Measures to control Vehicular Pollution

- Emission standards have been prescribed for new and in-use vehicle in 1991, 1996, 1996 and 2000.
- Specifications of emission related parameters of motor gasolilne and diesel (1996) have been notified.
- National Ambient Air Quality Standards have been notified (1982, 1994).
- Unleaded gasoline (0.013 g/L Lead) in four metropolitan areas since 1995 and low leaded gasoline (0.15g/L) in rest of the country have been introduced since 1996.
- Introduced catalytic convertor fitted cars in four metros since 1995.
- Fitting of catalytic convertor / CNG kit for in-use Govt. Vehicles made mandatory in Delhi.
- Reduction of sulphur content in diesel (from 1.0% to 0.5%) throughout the country since 1996. For Delhi, sulphur content in diesel was further reduced to 0.25% from August 1997.
- Formulated 2T oil specifications used for gasoline driven two-and three-wheelers.
- Installed premixed 2T oil dispenser in gasoline retail outlets in Delhi.
- Supplied CNG for automobiles through 9 retail outlets in Delhi.
- Subsidy for catalytic convertor, CNG kit etc. for their promotion in controlling air pollution.
- Necessary amendment made in the Motor Vehicle Act to permit LPG as automobile fuel.
- Ambient air quality near traffic intersections is also being monitored.
- Regular monitoring of exhaust emission from motor vehicles.
- Vehicular pollution control camps organized by manufacturers of automobiles.
- Studies. undertaken for controlling exhaust emission from vehicles through research institutions.
- Published reports related to vehicular pollution control and disseminated information to various organization.
- Epidemiological studies sponsored to ascertain health effects of air pollution.

4.3 Additional Steps taken to control Air Pollution in Delhi

- Delhi has been notified as an Air Pollution Control Area.
- Following actions have been initiated to control the pollution from the power plants located in Delhi:
  - Directions under Section 5 of E(P)A, 1986 have been issued on April 1996 and July 1996 to all the three Thermal Power Stations located in Delhi for completing the following in time bound manner:
    - Comply with emission and liquid effluent standards.
    - Submission of Action Plan for switching over the beneficiated coal with an ashcontent of not more than 35%.
    - Submission of Action Plan to achieve 20% utilization of fly-ash by Dec. be 1997.
    - Installation of opacity meters in all units to ensure compliance with the standards.
    - Covering of abandoned ash ponds with top soil.

- All the stone crushers have been closed down in Delhi and shifted to Pali in Haryana.
- All the Hot Mix Plants have been closed down and shifted to other states in National Capital Region.
- As per the direction of Hon'ble Supreme Court, 168 hazardous industries have been closed down in Delhi.
- Delhi Pollution Control Committee has notified the approved fuels to be used in Delhi.

4.4 Measures Recommended

Following measures are pre-requisite for sound air pollution management strategies with the main aim of protecting public health and heritage.

In short term, feasible approaches to reduce existing air pollution should be implemented as and when possible in the affected areas and may include;

- phasing out of old vehicles (older than 15 years),
- regular inspection and maintenance of motor vehicles,
- promotion of mass rapid transport system,
- phasing lead out of gasoline and sulphur out of diesel,
- safer alternatives to open burning of refuges, and
- decongestion of traffic.

Though, most of the measures are being implemented in some parts of the country. In non-attainment areas, they may be implemented with vigour.

In the long term, emphasis should be placed on preventive measures and in the development of management strategies to monitor and improve:

- air quality,
- urban-and transportation-planning,
- inter-departmental interaction while planning and implementing various land development (Master) plans of the cities in the country.
- Certain of zones for siting of air polluting industries
- source emission inventory
- monitoring of critical health related parameters
- revision of air quality standards.

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Methods of Measurement

The methods are briefly discussed as follows:

a. Sulphure dioxide (SO_2)

The SO2 is absorbed from air in a solution of potassium tetrachloromercurate (TCM). The resultant complex is made to react with pararosaniline and formaldehyde to form the coloured pararosaniline methysulphunic acid. The absorbance of this solution is measured by means of a suitable spectrophotometer at 560 nm.

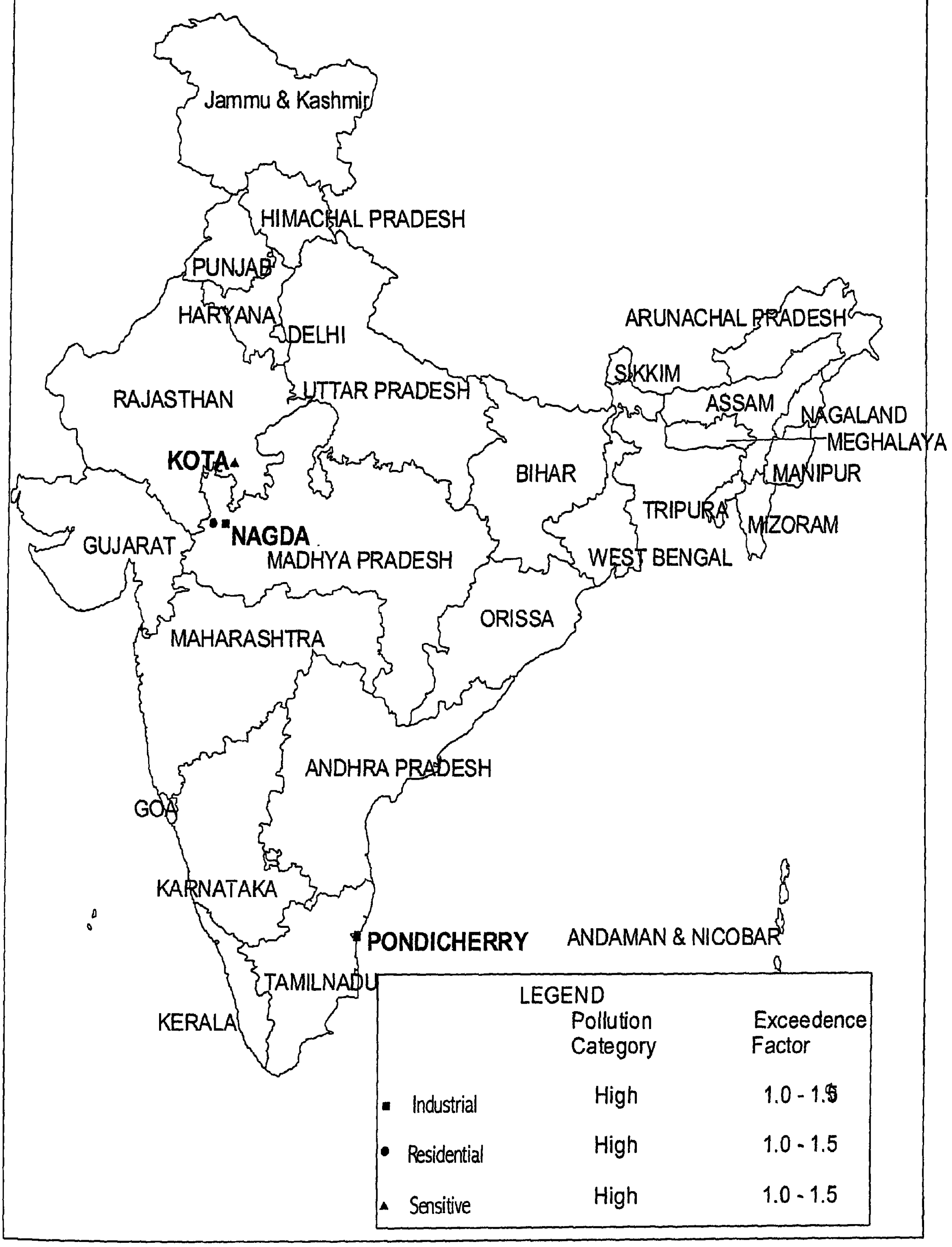
B. Nitrogen dioxide (NO2)

The NO_2 in ambient air is collected by bubbling it through a solution of sodium hydroxide and sodium arsenate. The resultant nitrite ion concentration is colorimetrically determined by reacting it with sulfanilamide and N-(1-napthyl)-ethylene diamine dihydrochloride, the absorbance is then measured at 540 nm.

C. Suspended Particulate Matter (SPM)

SPM is measured gravimetrically. High volume sampling with Whatman filter paper is used at average flow rate being not less than 1.1 cubic metre per minute.

Map 1 Non Attainment Areas of Sulphur Dioxide



Map 2 Non Attainment Areas of Nitrogen Dioxide



Map 3 Non Attainment Areas of Suspended Particulate Matter

